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EIGHTEENTH ANNUAL REPORT

OF THE

BOARD OF RAILROAD COMMISSIONERS.

JANUARY, 1887.

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Part I.

COMMISSIONERS' REPORT.

Commonwealth of Massachusetts.

The Railroad Commissioners respectfully submit their Eighteenth Annual Report.

RAILROAD CONSTRUCTION.

During the year ending Sept. 30, 1886, there were constructed the following additional miles of railroad in this State:—

| | |
|--|-------|
| Boston & Albany (Riverside Branch), | 3.000 |
| Boston & Lowell (Woburn Branch Ex.), | 4.200 |
| Fitchburg (Watertown Branch Ex.), | 1.660 |
| | <hr/> |
| | 8.860 |
| And there was a decrease in the number of miles by a re-measure- ment on several roads of | 1.040 |
| | <hr/> |
| Additional miles, | 7.820 |

MILEAGE OF RAILROADS.

The total length of railroads belonging to the corporations making returns to this Board was 2,867.613 miles of main line and branches, of which 1,011.367 were provided with double track. Last year the total length was 2,859.793 miles, with 977.087 miles of double track; showing an increase of 7.820 of total length, and 34.280 miles of double track. The total length of sidings was 1,249.862 miles, as against 1,203.142; showing an increase of 46.720 miles. The total length of track, considering double track and sidings as so much additional single track, is 5,128.842 miles, as against 5,040.022 of last year; the increase being 88.820 miles. Of the whole amount there are in this State, of main line 1,989.508 miles, of double track 733.919, and of sidings 892.676 miles, being a total of 3,616.103, as against 3,536.627 miles of last year; showing an increase of track in this State of 79.476 miles.

COST OF ROADS.

The average cost of standard-gauge roads is returned at \$62,540.41 per mile; the cost of equipment per mile operated averages \$5,947.33, — making the average cost of a standard-gauge road, with equipment, \$68,487.74. The cost of narrow-gauge roads averages \$31,030.80 per mile, and \$5,847.57 per mile additional for equipment.

NUMBER OF CORPORATIONS.

Returns were received from sixty corporations, — three less than last year. The Ashburnham and the Boston, Barre & Gardner having been consolidated with the Fitchburg, and the Lowell & Framingham with the Old Colony Railroad Company.

CAPITAL STOCK AND DEBT.

The aggregate capital stock was \$130,687,969.02, an increase of \$2,136,310.48, resulting from an increase of the capital stock of the following roads: —

| | |
|--|-------------|
| New York & New England, | \$1,900,000 |
| Boston & Lowell, | 587,700 |
| Old Colony, | 327,905 |
| Boston, Revere Beach & Lynn, | 14,200 |
| Boston, Winthrop & Shore, | 3,000 |
| Central Massachusetts, | 1,380 |
| Fitchburg, | 100 |

The Boston & Maine charged \$78,725.48 to capital stock account, in order that the account should show the capital outstanding.

The capital stock of the Lowell & Framingham, amounting to \$746,700, and of the Ashburnham, amounting to \$30,000, disappear from our accounts (under these names): the Lowell & Framingham having been consolidated with the Old Colony, and the Ashburnham with the Fitchburg.

The net debt of the companies — the gross debt less cash assets — amounts to \$71,012,497.49, a decrease of \$2,694,124.55. The cash assets of all the railroad companies of the State have increased by the amount of \$2,384,611.64. The returns for the last seven years are as follows: —

| YEARS. | Stock. | Net Debt. |
|-----------------|------------------|-----------------|
| 1880, | \$118,738,871 58 | \$59,172,520 25 |
| 1881, | 122,155,614 12 | 64,850,890 76 |
| 1882, | 122,976,262 26 | 71,913,806 00 |
| 1883, | 122,367,572 27 | 72,933,290 93 |
| 1884, | 127,668,390 27 | 74,439,473 75 |
| 1885, | 128,551,658 54 | 73,706,622 04 |
| 1886, | 130,687,969 02 | 71,012,497 49 |

GROSS INCOME.

The total gross income of these corporations for the year is \$49,315,820.50, an increase of \$4,692,470.15, being an increase of 10.5 per cent.

The following table gives a comparison for seven years : —

| YEARS. | Gross Income. | Increase from Previous Year. | Per cent. of Increase. |
|-----------------|-----------------|------------------------------|------------------------|
| 1880, | \$35,140,374 77 | | |
| 1881, | 37,764,395 83 | 2,624,021 06 | 7.5 |
| 1882, | 40,846,370 10 | 3,081,974 27 | 8.1 |
| 1883, | 43,380,387 63 | 2,534,017 53 | 6.2 |
| 1884, | 43,119,302 70 | 261,084 93* | 0.6* |
| 1885, | 44,623,350 35 | 1,504,047 65 | 3.5 |
| 1886, | 49,315,820 50 | 4,692,470 15 | 10.5 |

The total expenses — including rents paid — of all the corporations amounted to \$35,887,239.18, an increase of \$3,382,863.71. The net income was \$13,428,581.32, being an increase of \$1,309,606.44. The passenger earnings were \$23,331,325.71, an increase of \$1,781,956.44 over the year 1885, when they amounted to \$21,549,369.27. The freight earnings were \$22,840,363.53, an increase of \$2,647,391.81 over those of last year, which amounted to \$20,192,971.72.

The local passenger earnings were \$15,773,723.12, an increase of \$1,318,865.73 over the figures of last year, which were \$14,454,857.39. The through passenger earnings were \$5,401,602.23, an increase of \$322,635.52 over the amount for last year, which was \$5,078,966.71. The express, mail, and other

* Decrease.

earnings included in total passenger earnings, as given above, amounted to \$2,156,000.36, being an increase of \$140,455.19, this item having been, in 1885, \$2,015,545.17. The local freight earnings were \$10,929,413.10; in 1885 they were \$9,931,155.95, showing an increase of \$998,257.15. Through freight was \$11,852,778.57, against \$10,192,899.01, an increase of \$1,659,879.56.

The income from all other sources of the freight department amounted to \$58,171.86, as against \$68,916.76, a decrease of \$10,744.90. The following table gives the earnings in strictly railroad business during the past ten years :—

| YEARS. | Total Transportation. | Increase or Decrease from Previous Year. | Percentage. |
|------------------|-----------------------|---|-------------|
| 1876-77, | \$28,931,987 62 | — | — |
| 1877-78, | 28,003,236 41 | \$928,751 21* | 3.21* |
| 1878-79, | 29,152,829 02 | 1,149,592 61 | 4.10 |
| 1879-80, | 33,661,822 69 | 4,508,993 67 | 15.40 |
| 1880-81, | 35,936,302 87 | 2,274,480 18 | 6.75 |
| 1881-82, | 39,094,369 25 | 3,158,066 38 | 8.79 |
| 1882-83, | 41,635,800 39 | 2,541,431 14 | 6.50 |
| 1883-84, | 41,456,977 30 | 178,823 09* | 0.43* |
| 1884-85, | 41,742,340 99 | 285,363 69 | 0.69 |
| 1885-86, | 46,171,689 24 | 4,429,348 25 | 10.61 |

The following tables show the passenger and freight earnings for the past ten years, and the comparative amount of passenger and freight mileage during the same period :—

| YEARS. | Passenger Earnings. | Freight Earnings. |
|--------------------|---------------------|-------------------|
| 1876-77, | \$13,489,208 95 | \$14,234,677 72 |
| 1877-78, | 12,949,970 76 | 13,782,724 66 |
| 1878-79, | 13,035,047 44 | 14,813,337 69 |
| 1879-80, | 14,532,368 06 | 17,741,746 39 |
| 1880-81, | 17,328,495 48 | 18,607,807 39 |
| 1881-82, | 19,567,274 71 | 19,527,094 54 |
| 1882-83, | 20,602,289 13 | 21,033,511 26 |
| 1883-84, | 21,207,200 42 | 20,249,776 88 |
| 1884-85, | 21,549,369 27 | 20,192,971 72 |
| 1885-86, | 23,331,325 71 | 22,840,363 53 |

* Decrease.

Passenger and Freight Mileage.

| YEARS. | Total Passenger Mileage. | Total Freight Mileage. |
|--------------------|-----------------------------|---------------------------|
| 1876-77, | 605,544,855 | 684,810,604 |
| 1877-78, | 593,060,781 | 715,480,187 |
| 1878-79, | 616,871,131 | 806,064,933 |
| 1879-80, | 708,645,422 | 959,429,750 |
| 1880-81, | 788,422,761 | 1,080,802,796 |
| 1881-82, | 892,321,207 | 1,130,070,652 |
| 1882-83, | 943,245,658 | 1,220,824,418 |
| 1883-84, | 1,007,136,376 | 1,229,368,472 |
| 1884-85, | 1,041,628,073 | 1,266,160,455 |
| 1885-86, | 1,124,148,045 | 1,391,626,438 |

The increase of passenger mileage — or passengers carried one mile — for the year amounts to 82,519,972. The increase of freight mileage, or tons of freight carried one mile, amounts to 125,465,983. The total number of passengers carried was 75,842,581, showing an increase of 6,238,881 over the previous year. The whole number of tons of freight carried was 22,925,532, as against 20,577,096; showing an increase of 2,348,436 tons.

EARNINGS PER MILE OF ROAD.

The average sum earned on each mile of main track and branch operated was \$12,221.20; or, computing double track as additional single track, the average per mile was \$9,639.19. The average transportation earnings per mile, on the seven roads of standard gauge terminating in Boston, was \$11,604.68, being an increase of \$840.77 per mile.

COST OF OPERATING.

The following table shows the cost of operating the roads during the past ten years, and the percentage of operating expenses, not including taxes, as compared with gross receipts: —

| YEARS. | Cost of Operating per Mile of Road. | Percentage of Operating Expenses to Gross Receipts. |
|--------------------|--|---|
| 1876-77, | \$8,494 18 | 68 |
| 1877-78, | 7,319 51 | 69 |
| 1878-79, | 6,576 75 | 65 |
| 1879-80, | 7,786 00 | 68 |
| 1880-81, | 8,146 15 | 68 |
| 1881-82, | 8,603 10 | 69 |
| 1882-83, | 9,192 56 | 71 |
| 1883-84, | 8,062 12 | 66 |
| 1884-85, | 7,460 50 | 62 |
| 1885-86, | 8,147 84 | 63 |

GROSS AND NET INCOME.

The total gross and net income of all the corporations for ten years, and the percentage of gross and net income compared with the permanent investments, were as follows :—

| YEARS. | Total Gross Income. | Percentage to Permanent Investments. | Net Income.* | Percentage to Permanent Investments. |
|------------|---------------------|--|----------------|--|
| 1876-77, . | \$30,008,513 74 | 17.7 | \$9,344,088 38 | 5.5 |
| 1877-78, . | 29,053,008 76 | 17.0 | 9,232,811 98 | 5.4 |
| 1878-79, . | 30,312,964 54 | 17.5 | 10,154,013 86 | 5.8 |
| 1879-80, . | 35,140,374 77 | 19.5 | 11,191,815 53 | 6.2 |
| 1880-81, . | 37,764,395 83 | 19.9 | 10,701,751 60 | 5.6 |
| 1881-82, . | 40,846,370 10 | 20.5 | 19,902,202 95 | 5.5 |
| 1882-83, . | 43,380,387 63 | 21.8 | 10,900,479 92 | 5.4 |
| 1883-84, . | 43,119,302 70 | 20.4 | 11,048,618 19 | 5.2 |
| 1884-85, . | 44,623,350 35 | 20.8 | 12,118,974 88 | 5.7 |
| 1885-86, . | 49,315,820 50 | 23.0 | 13,428,581 32 | 6.3 |

The net income of 1885-86 was earned by the several corporations in the following proportions as compared with their permanent investments :—

| | | | | |
|---------------|------|---------------|----------------------|----------------------------------|
| 12 companies | with | \$9,205,000 | permanent investment | had no net income. |
| 9 | " | 39,551,000 | " | " " 3½ per ct. or less. |
| 13 | " | 14,729,000 | " | " " 3½ to 5½ per cent. |
| 9 | " | 54,156,000 | " | " " 5½ to 7½ " |
| 10 | " | 57,702,000 | " | " " 7½ to 9½ " |
| 4 | " | 38,911,000 | " | " " over 9½ per cent. |
| 57 companies† | " | \$214,254,000 | " | " " net income‡ of 7.9 per cent. |

* Gross income less total expenses and rents.

† Troy and Greenfield not included.

‡ Rents not deducted.

DIVIDENDS.

The total amount of dividends paid was \$6,857,506.30, an increase of \$305,802.15 over last year. Of the 60 corporations, 34 paid dividends varying from 2 to 10 per cent. The following table shows the amount paid in dividends by all the corporations for ten years, with the percentage to capital stock, and also the amount of interest paid : —

| YEARS. | Amount Paid in Dividends. | Percentage to Total Capital Stock. | Interest Paid. |
|------------------|---------------------------|------------------------------------|----------------|
| 1876-77, | \$5,429,183 31 | 4 60 | \$3,437,026 53 |
| 1877-78, | 5,589,927 40 | 4.68 | 3,126,925 34 |
| 1878-79, | 5,264,431 78 | 4.30 | 3,172,990 59 |
| 1879-80, | 5,987,718 64 | 5.05 | 3,423,752 25 |
| 1880-81, | 6,287,866 82 | 5.15 | 3,748,292 55 |
| 1881-82, | 6,271,139 86 | 5.10 | 4,291,222 59 |
| 1882-83, | 6,379,721 10 | 5.21 | 4,756,085 23 |
| 1883-84, | 6,535,054 92 | 5.12 | 4,729,328 56 |
| 1884-85, | 6,551,704 15 | 5.10 | 4,767,095 88 |
| 1885-86, | 6,857,506 30 | 5.33 | 4,810,019 68 |

AMOUNT OF BUSINESS.

The annual passenger and freight movement on all the roads, for ten years, appears in the following tables : —

| YEARS. | No. of Passengers Carried. | No. of Passengers Carried One Mile. | Average Distance Travelled. |
|------------------|----------------------------|-------------------------------------|-----------------------------|
| 1876-77, | 38,450,823 | 605,544,855 | 16.00 |
| 1877-78, | 37,318,427 | 593,060,781 | 15.85 |
| 1878-79, | 39,217,634 | 616,871,131 | 15.73 |
| 1879-80, | 45,151,152 | 708,645,422 | 15.70 |
| 1880-81, | 49,834,491 | 788,422,761 | 15.82 |
| 1881-82, | 55,868,694 | 892,321,207 | 15.97 |
| 1882-83, | 61,530,747 | 943,245,658 | 15.33 |
| 1883-84, | 66,517,265 | 1,007,136,376 | 15.29 |
| 1884-85, | 69,603,700 | 1,041,628,073 | 14.97 |
| 1885-86, | 75,842,581 | 1,124,148,085 | 14.82 |

| YEARS. | Tons Freight Carried. | Tons Freight Carried One Mile. | Average Distance each Ton was Carried. |
|------------------|-----------------------|-----------------------------------|--|
| 1876-77, | 11,910,663 | 684,810,604 | 57.40 |
| 1877-78, | 12,186,545 | 715,480,187 | 58.65 |
| 1878-79, | 14,401,877 | 806,064,933 | 56.00 |
| 1879-80, | 17,221,567 | 959,429,750 | 55.70 |
| 1880-81, | 17,971,072 | 1,080,802,796 | 60.14 |
| 1881-82, | 19,061,164 | 1,130,070,652 | 59.29 |
| 1882-83, | 20,202,881 | 1,220,824,418 | 60.43 |
| 1883-84, | 20,273,920 | 1,229,368,472 | 60.64 |
| 1884-85, | 20,577,096 | 1,266,160,455 | 61.53 |
| 1885-86, | 22,925,532 | 1,391,626,438 | 60.70 |

The miles run by passenger and freight trains, and the total miles run by all trains for the past ten years, were as follows : —

| YEARS. | MILES RUN BY — | | |
|------------------|-------------------|-----------------|-------------|
| | Passenger Trains. | Freight Trains. | All Trains. |
| 1876-77, | 10,479,546 | 9,967,200 | 20,811,041 |
| 1877-78, | 10,301,893 | 9,266,252 | 21,438,329 |
| 1878-79, | 10,792,629 | 8,974,993 | 22,755,910 |
| 1879-80, | 11,350,716 | 9,809,975 | 24,975,392 |
| 1880-81, | 12,413,290 | 10,398,539 | 27,205,783 |
| 1881-82, | 13,636,169 | 10,598,126 | 29,052,800 |
| 1882-83, | 14,244,658 | 11,382,154 | 31,150,823 |
| 1883-84, | 15,157,425 | 11,282,338 | 32,304,333 |
| 1884-85, | 16,212,988 | 11,722,667 | 34,168,999 |
| 1885-86, | 17,268,159 | 12,303,808 | 36,441,043 |

COST OF RUNNING TRAINS.

The average cost of running trains one mile during this year on all roads reported, has been \$0.845. The cost (not including taxes) of running each train mile for the past eight years was as follows : —

Cost per Total Train Mile.

| | | | |
|------------------|---------|------------------|---------|
| 1878-79, | \$0.845 | 1882-83, | \$0.949 |
| 1879-80, | .902 | 1883-84, | .895 |
| 1880-81, | .810 | 1884-85, | .813 |
| 1881-82, | .863 | 1885-86, | .845 |

The following table shows the cost, not including taxes, for five years per total train mile to each of the leading corporations of the State : —

| | COST PER TOTAL TRAIN MILE. | | | | |
|--|----------------------------|----------|----------|----------|----------|
| | 1881-82. | 1882-83. | 1883-84. | 1884-85. | 1885-86. |
| Boston & Albany, . . . | \$0.920 | \$1.003 | \$0.927 | \$0.819 | \$0.933 |
| Boston & Lowell, . . . | .867 | .830 | .781 | .650 | .680 |
| Boston & Maine, . . . | .923 | .964 | .900 | .805 | .805 |
| Boston & Providence, . . | 1.268 | 1.275 | 1.220 | 1.158 | 1.216 |
| Eastern, | .867 | .838 | .818 | — | — |
| Fitchburg, | .890 | .887 | .800 | .748 | .753 |
| New York & New England, | .850 | .922 | .932 | .839 | .834 |
| Old Colony, | 1.005 | 1.008 | .879 | .863 | .909 |
| Connecticut River, . . . | 1.019 | .998 | .936 | .906 | .967 |
| New York, New Haven & Hartford, | .983 | .981 | .968 | .898 | .937 |
| Providence & Worcester, . | .988 | 1.026 | 1.072 | .961 | .994 |

The cost of certain specified items of train service per total train mile for the last six years is divided as follows : —

| | 1881. | 1882. | 1883. | 1884. | 1885. | 1886. |
|--------------------------|---------|---------|---------|---------|---------|---------|
| Repairs of road-bed, . . | \$0.117 | \$0.125 | \$0.133 | \$0.122 | \$0.118 | \$0.122 |
| of bridges, | .020 | .017 | .024 | .024 | .023 | .025 |
| of rails, | .032 | .028 | .030 | .021 | .015 | .015 |
| of locomotives, | .057 | .061 | .066 | .060 | .054 | .056 |
| of passenger cars, . . . | .081 | .096 | .092 | .039 | .035 | .039 |
| of freight cars, | .144 | .141 | .138 | .043 | .035 | .047 |
| Wages, | .271 | .279 | .287 | .283 | .268 | .272 |
| Oil and waste, | .010 | .011 | .011 | .010 | .008 | .007 |
| Fuel, | .122 | .121 | .124 | .111 | .094 | .091 |
| Totals, | \$0.854 | \$0.879 | \$0.905 | \$0.713 | \$0.650 | \$0.674 |

The earnings for each revenue-train mile, for each passenger-train mile, and for each freight-train mile, on eleven of the principal roads in the State during the past five years, are given in the following tables : —

| | EARNINGS PER TOTAL REVENUE-TRAIN MILE. | | | | |
|--|--|----------|----------|----------|----------|
| | 1881-82. | 1882-83. | 1883-84. | 1884-85. | 1885-86. |
| Boston & Albany, . . . | \$1.496 | \$1.638 | \$1.542 | \$1.406 | \$1.596 |
| Boston & Lowell, . . . | 1.655 | 1.674 | 1.451 | 1.199 | 1.139 |
| Boston & Maine, . . . | 1.697 | 1.709 | 1.587 | 1.541 | 1.580 |
| Boston & Providence, . . | 1.860 | 1.838 | 1.749 | 1.715 | 1.763 |
| Eastern, | 1.637 | 1.648 | 1.580 | - | - |
| Fitchburg, | 1.451 | 1.532 | 1.394 | 1.324 | 1.337 |
| New York & New England, | 1.485 | 1.320 | 1.360 | 1.466 | 1.638 |
| Old Colony, | 1.697 | 1.668 | 1.685 | 1.723 | 1.727 |
| Connecticut River, . . . | 1.821 | 1.855 | 2.080 | 1.691 | 1.828 |
| New York, New Haven & Hartford, | 1.878 | 1.804 | 1.772 | 1.767 | 1.886 |
| Providence & Worcester, . | 1.977 | 2.013 | 1.832 | 1.962 | 2.110 |

| | EARNINGS PER PASSENGER-TRAIN MILE. | | | | |
|--|------------------------------------|----------|----------|----------|----------|
| | 1881-82. | 1882-83. | 1883-84. | 1884-85. | 1885-86. |
| Boston & Albany, . . . | \$1.863 | \$1.990 | \$1.824 | \$1.733 | 1.783 |
| Boston & Lowell, . . . | .947 | 1.047 | 1.071 | .954 | .888 |
| Boston & Maine, . . . | 1.508 | 1.513 | 1.402 | 1.373 | 1.402 |
| Boston & Providence, . . | 1.801 | 1.563 | 1.499 | 1.471 | 1.527 |
| Eastern, | 1.469 | 1.158 | 1.420 | - | - |
| Fitchburg, | 1.087 | 1.132 | 1.011 | .965 | .924 |
| New York & New England, | 1.050 | .988 | 1.018 | 1.074 | 1.161 |
| Old Colony, | 1.517 | 1.477 | 1.444 | 1.415 | 1.398 |
| Connecticut River, . . . | 1.290 | 1.253 | 1.593 | 1.112 | 1.239 |
| New York, New Haven & Hartford, | 1.970 | 1.821 | 1.835 | 1.726 | 1.815 |
| Providence & Worcester, . | 1.454 | 1.555 | 1.221 | 1.560 | 1.591 |

| | EARNINGS PER FREIGHT-TRAIN MILE. | | | | |
|--|----------------------------------|----------|----------|----------|----------|
| | 1881-82. | 1882-83. | 1883-84. | 1884-85. | 1885-86. |
| Boston & Albany, . . . | \$1.283 | \$1.433 | \$1.359 | \$1.199 | \$1.465 |
| Boston & Lowell, . . . | 3.874 | 3.547 | 2.266 | 1.519 | 1.469 |
| Boston & Maine, . . . | 2.112 | 2.145 | 2.029 | 1.904 | 1.944 |
| Boston & Providence, . . | 2.501 | 2.579 | 2.498 | 2.451 | 2.450 |
| Eastern, | 1.940 | 1.998 | 1.880 | - | - |
| Fitchburg, | 1.807 | 1.892 | 1.768 | 1.728 | 1.792 |
| New York & New England, | 2.095 | 1.652 | 1.729 | 1.966 | 2.216 |
| Old Colony, | 1.999 | 1.997 | 2.177 | 2.450 | 2.562 |
| Connecticut River, . . . | 2.788 | 3.066 | 2.639 | 3.060 | 3.167 |
| New York, New Haven & Hartford, | 1.730 | 1.775 | 1.670 | 1.844 | 2.014 |
| Providence & Worcester, . | 2.559 | 2.513 | 3.205 | 2.426 | 2.734 |

FARES AND FREIGHTS.

The four following tables show the average fares on all roads, the average fares and freights for eight years on the leading roads, and the change in average rate of freight on six roads since 1865 : —

Average Fare on all Roads in the State.

| 1878-79. | 1879-80. | 1880-81. | 1881-82. | 1882-83. | 1883-84. | 1884-85. | 1885-86. |
|----------|----------|----------|----------|----------|----------|----------|----------|
| \$0.0212 | \$0.0224 | \$0.0220 | \$0.0200 | \$0.0201 | \$0.0192 | \$0.0187 | \$0.0188 |

Average Fares for Six Years.

| | FARES. | | | | | |
|-------------------------|----------|----------|----------|----------|----------|----------|
| | 1880-81. | 1881-82. | 1882-83. | 1883-84. | 1884-85. | 1885-86. |
| | Cents. | Cents. | Cents. | Cents. | Cents. | Cents. |
| Boston & Albany, . . | 1.97 | 1.99 | 2 08 | 1.91 | 1.84 | 1.85 |
| Boston & Maine, . . | 1.99 | 1.95 | 1.97 | 1.90 | 1.74 | 1.80 |
| Boston & Providence, . | 1.95 | 1.96 | 1.88 | 1.88 | 1.84 | 1.87 |
| Old Colony, . . . | 2.14 | 2.00 | 2.00 | 1.87 | 1.70 | 1.70 |
| Boston & Lowell, . . | 1.88 | 1.67 | 1.94 | 2.12 | 2.04 | 2.06 |
| Fitchburg, . . . | 1.82 | 1.71 | 1.77 | 1.65 | 1 83 | 1.75 |
| Eastern, | 1.93 | 1.88 | 1 82 | 1.72 | — | — |
| New York & New England, | 2 25 | 2 09 | 2.06 | 2.01 | 1.93 | 2.02 |
| Connecticut River, . . | 2.53 | 2.48 | 2.36 | 2.37 | 2.34 | 2.42 |
| New York, New Haven & | | | | | | |
| Hartford, | 1.80 | 1.81 | 1.98 | 1.96 | 1 94 | 1.92 |
| Providence & Worcester, | 2 24 | 2.12 | 2.14 | 2.12 | 2.08 | 2.10 |

Average Freights for Six Years.

| | FREIGHTS. | | | | | |
|--|-----------|--------|--------|--------|--------|--------|
| | 1881. | 1882. | 1883. | 1884. | 1885. | 1886. |
| | Cents. | Cents. | Cents. | Cents. | Cents. | Cents. |
| Boston & Albany, | 1.04 | 1.07 | 1.20 | 1.09 | 0 94 | 1.10 |
| Boston & Maine, | 2.43 | 2 35 | 2.24 | 2.34 | 2.13 | 2 27 |
| Boston & Providence, . . . | 2.77 | 2.83 | 2.83 | 2.82 | 2.83 | 2.84 |
| Old Colony, | 2.99 | 3.04 | 3.16 | 3.00 | 2.90 | 2.93 |
| Boston & Lowell, | 3.13 | 2.60 | 2.98 | 2.33 | 1.77 | 1.67 |
| Fitchburg, | 1.26 | 1 18 | 1.19 | 1.09 | 1.06 | 1.07 |
| Eastern, | 2.06 | 2.03 | 1.92 | 1.81 | — | — |
| New York & New England, . | 2.20 | 1 77 | 1.38 | 1.41 | 1.71 | 1.67 |
| Connecticut River, | 2.99 | 3.07 | 3.04 | 3.05 | 2.96 | 2.81 |
| New York, New Haven & Hart- ford, | 1.79 | 1.98 | 1.89 | 1 96 | 1.96 | 2.00 |
| Providence & Worcester, . . | 2.80 | 2 78 | 2.96 | 3.09 | 2.45 | 2.49 |

Average Rates of Freight, 1865 and 1886.

| | Rate 1865. Cents. | Rate 1886. Cents. | Per cent. of 1865 to 1886. |
|------------------------------|----------------------|----------------------|-------------------------------|
| Boston & Albany, | 3 90 | 1 10 | 28 |
| Boston & Maine, | 4.58 | 2 27 | 49 |
| Boston & Providence, | 4 38 | 2.84 | 65 |
| Connecticut River, | 6.20 | 2.81 | 45 |
| Fitchburg, | 4.10 | 1.07 | 26 |
| Old Colony, | 3.20 | 2.93 | 92 |

STEEL RAILS.

During the year, 237.434 miles of steel rail were laid as against 214.756 laid last year, making the whole amount now laid 3,573.910 miles; being nearly 93 per cent. of the total of main line, including double track and branches. The amount of steel rail laid each year for six years is shown in the following table: —

| | 1880-81. | 1881-82. | 1882-83. | 1883-84. | 1884-85. | 1885-86. |
|-----------------------|----------|----------|----------|----------|----------|----------|
| Steel rail (miles), . | 154 | 331 | 308 | 347 | 215 | 237 |

ROLLING STOCK.

The increase in the number of locomotives during the year has been 29, and of passenger cars, 65; mail and baggage cars have increased 9; freight and miscellaneous cars have increased 1,362.

The following table shows the amount of rolling stock returned for the last seven years : —

| | 1879-80. | 1880-81. | 1881-82. | 1882-83. | 1883-84. | 1884-85. | 1885-86. |
|--------------------------|----------|----------|----------|----------|----------|----------|----------|
| Locomotives, . | 1,103 | 1,161 | 1,222 | 1,286 | 1,391 | 1,416 | 1,445 |
| Passenger cars, . | 1,512 | 1,568 | 1,658 | 1,790 | 1,948 | 1,993 | 2,058 |
| Mail and baggage cars, . | 403 | 432 | 463 | 482 | 525 | 509 | 518 |
| Freight cars, . | 21,986 | 24,502 | 26,382 | 28,008 | 29,701 | 29,957 | 31,319 |

EMPLOYEES.

The average number of persons employed by the railroad corporations was 31,188, being 1,119 more than in the year before. The following table shows the number employed for each of the past eight years : —

| | | | |
|----------------|--------|----------------|--------|
| 1878-79, . . . | 19,453 | 1882-83, . . . | 29,844 |
| 1879-80, . . . | 21,615 | 1883-84, . . . | 30,590 |
| 1880-81, . . . | 25,490 | 1884-85, . . . | 30,069 |
| 1881-82, . . . | 27,403 | 1885-86, . . . | 31,188 |

The whole number employed by all the corporations making returns to this Board is 35,803.

STREET RAILWAYS.

Returns were received from 43 street railway companies. During the year nine have been incorporated and added to the list,—the Citizens', Fitchburg, Gloucester, Hoosac Valley, Pittsfield, Newton (under a special act), Lowell & Dracut, and Onset. The Boston Consolidated was incorporated under a special act, being a consolidation of the Highland and Middlesex Companies. The aggregate capital stock is \$9,125,645.00,

being an increase of \$1,048,545.00; their gross debt has also increased \$519,341.60, and now amounts to \$5,464,729.61. The aggregate of stock and gross debt is now \$14,590,374.61.

One corporation made a dividend of 22 per cent., one of 12, one of 10, five of 8, one of 7.03, one of $6\frac{1}{2}$, seven of 6, two of 5, one of 4, one of 2, one a regular dividend of 8 and also an extra dividend of 30 per cent. from the surplus of previous years; while twenty-one declared no dividends.

The average rate of dividend on the total amount of capital stock was 5.41 per cent.; and the net earnings (interest deducted) amount to 5.42 per cent. on the aggregate of capital stock and gross debt.

The whole length of track, including branches, sidings, and double track, amounts to 440.135 miles, being an increase of 64.227 miles. The average cost was \$17,272.11 per mile for permanent way, \$8,668.31 for equipment, and \$9,169.82 for land and buildings; making a total cost of \$35,110.24 for each mile of road owned. The number of round trips was 2,878,005, an increase of 179,667 over the previous year; with a mileage of 19,661,675, an increase of 1,494,056. Passengers were carried to the number of 112,087,384, being an increase of 11,340,598 over the number carried during the preceding year. The number of passengers carried on the street railways exceeded the number on the steam roads by 36,244,803.

The gross income was \$5,878,583.05, an increase of \$684,145.05. There was an increase of net income of \$149,987.08; with a decrease of dividends paid amounting to \$12,973.75.

The average amount received for the conveyance of each passenger was 5.25 cents, and the average cost of carrying each person amounted to 4.33; the net profits to the companies being 0.92 cent, against 0.87 cent as compared with last year. The average cost of a round trip was \$1.69, with a profit of 35 cents, being an increase of 2 cents from last year.

The whole number of horses was 10,789, being an increase of 1,004; the number of cars was 2,289, showing an increase of 175, and the number of other vehicles was 150. The number of persons employed on street railways was 4,615, being an increase of 512 over last year. The number of accidents reported was 86, of which nine were fatal. The number injured the previous year was 96; fifteen of whom were killed.

ACCIDENTS.

The record of accidents for the year ending Sept. 30, 1886, is more deplorable than that of any year since the Wollaston disaster in 1878, though far less fatal than that. Train accidents caused the death of 18 persons and injured 61 others. To these may be added an accident on the Massachusetts Central Railroad, not a train accident, by which 9 Italian laborers were swept from a flat car by coming in contact with a car on a siding, but too near the main track to be cleared; two of them being fatally injured and seven others more or less severely. These accidents were investigated by the Board, as usual, immediately after their occurrence, and special reports were made, which will be found in the appendix. (Appendix B.)

By far the most serious accident of the year was that which occurred on the State road near Bardwell's Ferry. This the Board, as in duty bound, investigated at once, and repeated its investigation until all the available testimony was exhausted. It is unnecessary to say that in examining witnesses and in publishing the result no attention was paid to the probable financial effect upon the Commonwealth. To conceal or to slur over any fact which tended to fix or increase the liability of the State would have been unworthy of her servants. Nothing that has occurred since the report has affected our opinion as to the causes of the accident. These were, — 1. The use as a portion of the embankment of crib-work battered against the slope of a steep ledge; 2. The want of proper drainage at this spot; 3. The over-loading of the embankment at a place where a concealed defect existed. And these causes, in combination with the state of the weather, fully account for the catastrophe.

The whole number of accidents reported to the Board during the year was 525, being 25 more than for the preceding year. The number of casualties to persons was 591, being 74 more than last year. Of these, 203 were killed and 388 were injured; 114 were passengers, 274 were employees, 44 were travellers at grade crossings, and 159 were trespassers. The casualties to passengers were 40 more than during the preceding year; and of these 9 were killed and 43 were injured by causes beyond their own control, while last year no passenger was killed and

but 12 were injured by such causes. The number injured by their own misconduct or imprudence was 10 fatally, and 52 not fatally. Last year, 14 were killed and 48 were injured by their own fault.

Of the 274 casualties to employees, 63 were fatal and 211 not fatal; 213 were trainmen and 61 were employed in other capacities. By coupling or uncoupling cars, two were killed and 105 were injured. Only one accident is reported as occurring where an automatic coupler was used. In that case a damaged United States coupler connected with an ordinary link and pin drawbar. Two trainmen were killed and 6 were injured by overhead bridges. Train accidents killed 8 and injured 18. The most fatal class of accidents to trainmen is falling from trains in motion, 17 persons having been killed and 38 injured in this way, most of them severely. By various other accidents 34 were fatally, and 44 not fatally, injured.

At grade crossings, with gates or flagmen for the protection of travellers on the highway, there were 15 casualties, and at crossings without gates or flagmen, 20. Twenty-two persons were killed and 13 were injured. The greatest number of casualties of this class on any one road occurred at crossings having gates or flagmen, but the most serious accident happened about nine o'clock in the evening at a crossing where the gate-tender had left his post, according to his usual practice, at eight o'clock and the crossing was unguarded. The number of these accidents is more than 20 per cent. less than last year.

The number of trespassers killed and injured was 7 more than last year, 130 of whom were injured when walking or lying on the track, and 29 when stealing or attempting to steal a ride on freight cars. The number killed was 91, being two less than last year. The number of this class of victims of their own folly varies less from year to year than other casualties.

An examination of the tables in the Appendix will show that there is a marked difference in the actual casualties on the several roads, or that there is apparently a failure on the part of some companies to report accidents according to the practice of others and the rules prescribed by the Board. The Boston & Providence Railroad, for instance, reports but one accident to an employee, whereas the other roads terminating in Boston,

report respectively from 23 to 76 casualties to employees. The same road reports no accident happening from coupling or uncoupling cars, while all the other roads report several such casualties, the Fitchburg as many as 48. If the employees of the Boston and Providence have wholly escaped crushed fingers or broken bones they have either been remarkably fortunate or have exercised a caution not usually manifested by brakemen or shifters. That road is also singular in having only two of its 6,119,906 passengers injured more or less seriously, by imprudently jumping from, or attempting to get upon, moving trains. This may be due, in part, at least, to the location of its stations, which are very frequent within its suburban limit, and offer few inducements for passengers to jump from a moving train in order to take a "short cut" homeward. It is possible, too, that its passengers are more cautious than those on other roads, or that the corporation and its employees look more carefully after the safety of passengers. The following table shows the proportion of passengers and employees injured on the several roads terminating in Boston:—

| RAILROADS. | Total Passengers Carried. | Passengers In- jured by their own Fault. | Ratio. |
|----------------------------|------------------------------|--|----------------|
| Boston & Albany, | 9,726,907 | 12 | 1 in 810,575 |
| Boston & Lowell, | 6,700,030 | 7 | 1 in 957,148 |
| Boston & Maine, | 17,022,581 | 15 | 1 in 1,134,848 |
| Boston & Providence, . . . | 6,119,906 | 2 | 1 in 3,059,953 |
| Fitchburg, | 4,130,395 | 8 | 1 in 516,299 |
| New York & New England, . | 5,240,906 | 8 | 1 in 655,113 |
| Old Colony, | 9,068,790 | 5 | 1 in 1,813,758 |

| RAILROADS. | Number of Employees. | Number In- jured. | Ratio. |
|----------------------------|-------------------------|----------------------|----------|
| Boston & Albany, | 5,149 | 43 | 1 in 120 |
| Boston & Lowell, | 3,543 | 34 | 1 in 104 |
| Boston & Maine, | 4,913 | 32 | 1 in 154 |
| Boston & Providence, . . . | 994 | 1 | 1 in 994 |
| Fitchburg, | 2,327 | 76 | 1 in 31 |
| New York & New England, . | 3,045 | 30 | 1 in 102 |
| Old Colony, | 3,360 | 23 | 1 in 146 |

It is remarkable that on the Old Colony Railroad, with the numerous grade crossings of highways and travelled places on its extensive mileage, no crossing accident has been reported during the past year. This road has not always enjoyed this fortunate exemption, and no company is more persistent in its efforts to abolish these sources of danger.

It will be observed on reference to the tabular statement in the Appendix that most of the roads report much the larger number of trespassers as *killed*, while the Boston & Albany and the New York & New England report the larger number as *injured* merely. It is doubtful whether this is the true result of those accidents in all cases; and it is probable that sometimes severe injuries are reported which subsequently result in death, of which no notice is given to the Board.

The Massachusetts railroads do not show the fortunate comparative exemption from accident to passengers by causes beyond their own control that was shown in the preceding year. Then the ratio was:—killed 0 in 69,603,700 passengers carried; injured 12, or 1 in 5,800,308 passengers carried.

For the year ending Sept. 30, 1886, the total number of passengers carried was 75,842,581; killed 10, or one in 7,584,258; injured 35, or 1 in 2,166,931; total 45, or 1 in 1,685,391.

But the ratio of accidents to the number of passengers carried in a decade is a better criterion of safety or danger in railroad travelling than that for a single year. In the ten years pre-

ceding 1886 the number of passengers carried was 504,626,162. Number killed and injured* by causes beyond their own control 274, or 1 in 1,841,701. So that the number killed and injured during the past year does not much exceed the average for the ten preceding years, which included the Wollaston disaster of 1878, and the Boston, Barre & Gardner derailment in 1883.

The tabulated statement of train accidents in the United States, prepared from the monthly record in the Railroad Gazette, will be found in the Appendix. If this record contains all the accidents on the railroads of the United States, which is not probable, the railroads of Massachusetts contributed perhaps a trifle more than their share according to mileage. But it is to be remembered that our record is official and made under the law, while many such as are reported here are not made a matter of record elsewhere, or even the subject of newspaper mention.

GRADE CROSSINGS.

The number of crossings of railroads and highways at grade, according to the returns, is 2,138, of which 738 are protected by gates or flagmen.

Seventeen grade crossings have been allowed during the year. Only one of them was an important one, and it was permitted because by such action the abolition of two like crossings was secured. Some of the others merely took the place of crossings now existing, some were crossings over streets that only exist on paper, and a few were granted because they were absolutely necessary.

The Act of 1885, chap. 197, designed to promote the abolition of grade crossings, has proved useful, especially on the Old Colony Railroad, where ten level crossings have been abolished. The apparent increase of these crossings on that road as shown in their returns arises from the fact that 37 existing on the Framingham and Lowell Railroad are this year reported as of the Old Colony. It is to be hoped that other companies will follow the good example set by this company in expending time and money to rid the public of the dangers arising from this cause.

* The earlier tables do not give the number killed and injured separately.

If legislation is needed to facilitate the reduction of the perils arising from this source, we believe that the General Court is ready to act. We repeat our suggestion, that a railroad company resisting the creation of a new grade crossing is not to be regarded as a public enemy, acting only from selfish motives. And we renew the proposition, that where a new highway is laid across a railroad, some tribunal may be empowered in fit cases to apportion among the proper parties the expense caused by the construction of a bridge, notwithstanding the fact that the railroad is the "first comer." Such an act would check the demand for grade crossings, relieve towns from apparent hardship, and remove a source of great discontent.

RECENT LEGISLATION.

Weekly Payments.

Chapter 87 of the Acts of 1886 requires weekly payment of employees by railroad and railway companies as well as by other corporations. No complaint or communication of any kind has been made to the Board relating to this law.

Blocking Frogs.

Chapter 120, Acts of 1886, provides that all railroads in the State shall, before Jan. 1, 1887, have all frogs, switches and guard-rails on its track (except guard-rails on bridges) adjusted, filled or blocked so as to prevent the feet of its employees from being caught therein. The work is to be done to the satisfaction of the Board, shown by the certificate of their clerk.

In this enactment, the State followed the lead of Michigan, where such a law has been for some time in successful operation. The plan of filling angles so as to prevent the sad accidents arising from their existence is regarded with prejudice by some railroad men, who are ignorant of its working, and with entire favor by those who are acquainted with it. On two roads in this State, the Boston & Albany and the Fitchburg, the work was completed before the passage of the act. On the Old Colony it was begun, and has now far advanced toward completion. Upon most of the roads, progress in this matter has been slow. The Board while inspecting tracks has paid attention to the method in which the work has been done. Its

approval has been given to the method pursued on the roads named above and on the Boston & Lowell. The time has not quite arrived when the law requires the completion of the work,^f but the requirements of the common law and of humanity would seem to demand that there should be no needless delay in protecting workmen against a terrible form of death.

FLINT & PERE MARQUETTE RAILROAD CO.

EAST SAGINAW, MICH., Nov. 12, 1886.

HON. THOS. RUSSELL, *Chairman Massachusetts Railroad Commission,*
20 Beacon Street, Boston, Mass.

DEAR SIR:—I have received a letter from Hon. W. W. Crapo, asking me to write you giving our experience in the use of the “Hart” patent frog filling.

Will say that this company has used this device since the summer of 1882, and it was adopted for all the frogs, switches and guard-rails on this line. Since this line has been equipped with this device, there has not been an accident whereby any one has been injured by being caught in frogs, switches or guard-rails, where anything of this kind would have prevented it. The construction is such that it is not affected by the weather, storms, ice or snow, and there is no liability of any accident being caused by it, such as derailment to trains. It is simple, easily applied, and costs, nominally, nothing to maintain, and when once applied, does away entirely with the risk of brakemen or others being caught and held by the feet. I would refer you to a copy of the “Railroad Gazette,” under date of Friday, Oct. 22, 1886, page 720, a meeting of the Roadmasters’ Association of America. The report of the committee which is contained therein will give you more facts than I have stated, and the statement contained therein is about the experience that we have had.

Can say nothing further in regard to this, only that it has given us entire satisfaction. Yours respectfully,

SANFORD KEELER, *Superintendent.*

Relief Societies.

Chapter 125 permitted any railroad company to unite with its employees or a portion of them in forming a relief society, such as was already authorized by law for the relief of men disabled by accident or sickness, and for pensions to those growing old in the service, and to their families. It also enabled any corporation to become a member of any such society existing under the Act of 1882; and it exempted the

funds of such societies from any process because of any liability or debt of the corporation, or of any other member of a society. We had hoped that such a system would prevent much suffering, give confidence to the men, secure better service, and improve the relations between the employed and their employers.

Unfortunately, as we think, no railroad company has proposed to join any such society; nor, so far as we know, has any company been invited to do so. Some distrust of the proposed action has, as we learn, been caused by what seemed to be the harsh action of a railroad corporation in another State, where it was attempted to make membership compulsory, and where, in case of non-compliance with the terms, arbitrary removal from employment was to be accompanied by the loss of all contributions hitherto made. No such injustice would be possible under the legislation of this State, where the by-laws are framed by the members of each relief society, with the approval of this Board.

It is hoped that more consideration will be given to this subject, in view of the great benefit which the system promises to the men, to the railroad companies and to the public.

The remarks of Commissioner Russell give, briefly, an idea of the legislation desired, and the reasons for asking its adoption.

“*Mr. Chairman and Gentlemen:* My remarks will be brief, for our report contains all that I desire to say, and the Governor’s message tells the whole story in a very few words. We ask for a bill allowing railroad companies to join with their employees in creating and administering relief funds for the men and their families in case of illness, injury, disability and death. The bill is permissive, for compulsory co-operation is not desired; and if legislative action in this form does no good, it can do no harm. If voluntary co-operation between any company and its men is secured, a great good will be accomplished. If they fail to act, it will only be an opportunity lost.

“The general advantage of benefit associations, for health insurance, life insurance and the like, need not be argued. The number of such societies is the best proof; and they are especially desirable for men engaged in a hazardous business.

Such associations for railroad men have received special sanction from the Legislature, which by chapter 244 of the Acts of 1882 authorized the formation of relief societies by railroad operatives. We only ask now that railroad companies may be allowed to unite with their men in these societies.

“ The need of legislation is, first, to empower the companies to do what would otherwise be, in legal language, ‘ultra vires,’ or beyond their power. Any stockholder might say, ‘We were chartered to operate a railroad, not to administer charity,’ and he might apply for an injunction, and prevent the directors from carrying out a project for the benefit of their men. It is also desirable to protect the funds from any creditor of the company or of the men, so that they may be exempt from any process of law, and secured to the beneficent purpose for which they were given.

“ The special benefit of such a law to the men will be :—

“ 1. The money contribution of the railroad company. This may be made by a lump sum, given at once, like the \$100,000 which the Baltimore & Ohio Railroad Company gave at the outset, or by some portion of the profits, to be given annually or semi-annually, or by both modes of contribution. It is very desirable that some fixed part of the net profits should be given for this use, so that the men may have a direct interest, although a small one, in the success of the railroad on which they are employed. A moral benefit as well as a pecuniary one would thus be secured. One great advantage of a corporation subscription would be that the association would at once have means of continued life. A society supported solely by assessment may be ruined at the outset, or it may languish until every one is tired of it. The Baltimore & Ohio Association entered at once upon vigorous and assured life.

“ 2. The association will have the aid of the clerical staff of the road, saving cost, and especially making the collection of assessments certain, easy and inexpensive. The paying agent will simply deduct his dues from the monthly, semi-monthly or daily pay of each member. The tax will be collected without cost, and will be paid without effort. The financial advice and skill of the manager of the road will also be freely given, and will save the association from some risks.

“ 3. Above all, relief, when given, will be received not as a

charity, but as a right; not as a matter of favor or caprice, depending upon the whim or the mood of the directors,—possibly depending in amount upon the digestion or the dinner of the president,—but as part of a system governed by fixed rules. Railroad companies now pay gratuities when their injured men have no legal claim; they relieve the families of the dead, and they give easy places, in lieu of pensions, to men who have grown old in their service. All this we propose that they shall do on a larger scale than now, in a more uniform manner, and from a fund which the beneficiary and his associates have helped to form.

“The benefit to the companies will be the securing of better men, better service, more prolonged service, and better relations between them and their employees. A common interest and the care of employers for the right and welfare of the employed will create a tie better than the mere payment of wages. I have referred to a great corporation which felt warranted in making a large expenditure on these grounds. Five years of experience have justified the expenditure. And the Pennsylvania Railroad Company has just followed the example of the Baltimore & Ohio. The public will gain, not only because the proposed measure will promote the harmony and happiness of a very large class of men, but because to the travelling public better men and better service mean increased safety for every passenger. I have heard of railroads where the men are hostile to their employers, where a disaster at one point on the road creates pleasure at every other point. I know railroads where employers and employed regard each other with mutual respect and kindness. And you all know on which kind of railroad it is safer to ride.

“The two bills which are proposed, and between which I have little choice, are mere skeletons, leaving all details to the companies and to the men. And this is necessary, for different companies would have different ideas. No by-laws can be adopted unless the employers and their men are both agreed upon them. The first bill contains some provisions taken from the charter of the Boston & Albany Association, a charter which was obtained after two years of experiment without incorporation. It seems wiser and more in accordance with the spirit of our laws to pass a general act than to give special

charters for each association. We had hoped for the presence of Dr. Barnard, who could explain in detail the working of this system. Severe illness has prevented him from coming at this time. But his excellent article in the 'Popular Science Monthly' for October gives a good account of the plan, and seems to answer all possible objections. The best proof of a system is in its working.

"The system, as has been said before, conflicts with no law now existing, or that may hereafter exist, as to employers' liability. It works in the many States in which the Baltimore & Ohio extends by its main lines, its branches and its leased lines. The proposed law applies to men for whose injuries the companies are liable, and to those for whom no liability will arise. It covers the cases of men who grow old and feeble without accident; and, as it applies to cases of death, it applies to all. I believe that it will directly benefit the great body of railroad workmen, the companies and the public; and I hope that, by recognizing the desirability and proving the possibility of the co-operation of labor and capital, it will aid, however slightly, in the right settlement of a question upon which the fate of civilization depends."

An Act as to the Rights and Duties of Purchasers of Railroads.

Chapter 142 was designed to accomplish two purposes: —

1. To enable the purchasers of a railroad sold under foreclosure of a valid mortgage to operate the same, without any dealings with the insolvent corporation. It is for the interest of the creditors, and still more for the interest of the public, that a road in such circumstances shall be operated. And there is no reason why stockholders, who have lost all beneficial interest in the road, should have the power to prevent its operation or to levy tribute for their consent to it.

2. The act seemed desirable as an attempt to subject an assignee of a railroad sold under foreclosure to the same supervision and control which are exercised by the State over other railroad franchises and property.

UNION STATION.

An important act was passed authorizing a union passenger station between Charles River and Causeway Street, in the city of Boston.

The important question of improved railroad facilities for freight and passenger business in the city of Springfield has received attention, and it is hoped that it may result in action.

STREET RAILWAY COMPANIES

are made subject to actions of tort in cases of loss of life by negligence (chap. 140). This was intended to cure a defect in former legislation relating to fatal cases of accident on railroads. Street railways are also authorized to use the cable system as a motive power (chap. 337). By chapter 229 each of the street railways authorized to run cars in or into Boston may consolidate with any other such railway, and may, with the consent of the Railroad Commissioners and of the aldermen of the city, maintain the cable system of motive power. Two consolidations have taken place under this Act, but there has been no change of motive power.

SAFETY APPLIANCES.

Freight Couplers.

Chapter 242 provides that in June or July of this year, and of every second year hereafter, the Board shall test safety freight-couplers, as was done under the Act of 1884. The framers of this act apparently desired, on the one hand, to forbid the possible exclusion of some new invention superior in its merits to all that had preceded it; and on the other hand, to prevent the evils that would arise from keeping the coupler question open from day to day with an indefinite number of devices without striking or exceptional merit. They remembered that uniformity is as desirable as excellence, since a combination of different couplers, each good in itself, may be a grave source of danger. It was remembered, also, that everything which increases uncertainty as to the final choice of safety couplers tends to prevent the adoption of any such coupler, except in cases where the law absolutely compels it.

The result of the trials and examinations made by the Board was the adoption of the Boston Automatic Safety Coupler, which was added to the list approved for use in this State.

Replies to a special circular show that the numbers of approved couplers applied during the year are as follows: Ames, 1,356;

Cowell, 111; Hein, 114; Janney, 12; United States, 2,172. In addition to these, the New York, New Haven & Hartford Railroad Company has put on 1,376 Whittemore couplers, which have been approved by the Commissioners of Connecticut. The total number of couplers prescribed by this Board, and now in use on the railroads of the State, is as follows: Ames, 1,650; Cowell, 194; Hein, 506; Janney, 12; United States, 3,012. The Cheshire Railroad has put in 150 Saffords.

Only one accident, a slight one, occurred in connection with the use of any of these couplers, and it did not appear that the nature of the device had any bearing on the accident. But much dissatisfaction exists with regard to some of the couplers prescribed, and little progress has been made here or elsewhere toward the adoption of any universal coupler. The action of the Michigan Commissioner has increased the number which have met official approval. And the New York law, which went into effect on July 1, permits the use of any automatic coupler.

The tendency of opinion among railroad men is toward the selection of some vertical plane coupler. But it seems doubtful whether any one will be universally adopted, unless its use for inter-state commerce shall be compelled by congressional action. It would seem, however, that all compulsory State legislation, prescribing the use of any one coupler, must be unconstitutional and void so far as it relates to inter-state commerce. For no State can direct the manner in which inter-state commerce shall be conducted. And so much of our commerce is inter-state, that only an insignificant fraction will remain subject to the restrictions of local legislation in this respect. If this be so, it is probable that efforts will be made to provide mechanical safeguards to the great volume of traffic which is subject to inter-state and international law.

Protection against Fire.

Public attention has recently been called, by the "Rio" disaster, to the great peril arising from fire in cases of collision or derailment. The Commissioners have often had occasion to consider this matter, and special attention was given to it at the time of the Bardwell's Ferry accident, when some cars were destroyed by fire, although fortunately no life was lost by it.

The result of our inquiries satisfies us that a system of heating by steam from the locomotive is feasible, safe and unattended by any serious difficulty, so far as important through trains are concerned, and also in regard to cars which are constantly performing a short service, and trains run continuously on a belt line. Experience on the elevated railways shows conclusively that this method of heating is in every way practicable, so far as that system is concerned. The following correspondence of Mr. Beach with the Board speaks for itself:—

CLEVELAND, COLUMBUS, CINCINNATI & INDIANAPOLIS AND
INDIANAPOLIS & ST. LOUIS RAILWAYS,
CLEVELAND, OHIO, May 18, 1886.

MR. THOS. RUSSELL, *Chairman Board of Railroad Commissioners, Commonwealth of Massachusetts, Boston, Mass.*

DEAR SIR:—Upon my return to office, after an absence of several days, I find your valued favor of May 10th.

In reply, I beg to say that we are using the Martin Anti-Fire Car Heater on our road, and have done so for the past two years, although not extensively, the use of it being merely a test as to its practicability for general adoption.

On May 20, 1884, the device was applied to our engine No. 417 and coaches Nos. 352 and 353, and to combination car No. 105, which engine and cars were running regularly during the winter of 1883 between Springfield and Cincinnati.

The weather had moderated to such an extent by this time that but very little test to demonstrate the serviceability of the device could be made.

The following winter, however, viz., that of 1884, the test was repeated, and during the most severe weather, when the thermometer ranged between five degrees and thirteen degrees below zero, the cars were made so warm by a pressure of steam registering between two and one-half pounds and five pounds on the steam gauge in the coaches, that our conductors were obliged to open the deck-sash ventilators of the cars.

The winter was so severe during that year that it was with much difficulty that we kept comfortable passengers in other coaches not equipped with the device and running on other trains.

In case the heat in cars equipped with the device becomes oppressive, train-men can regulate the temperature by opening a globe valve, located under end of seat about in centre of each coach.

In the winter of 1885 we equipped another train with the device, and quite as good satisfaction as in the test of the previous winter was obtained.

Our experience shows there is but very little trouble in operating the device, and absolutely no danger whatever, and, moreover, perfect safety from fire in the event of a derailment of train.

The engineers that have been running the locomotives equipped with the device state that the amount of steam consumed by it is scarcely perceptible on the gauge of the boiler, and that the required pressure of steam for motive power was maintained without any augmented labor and without any apparent increase in the consumption of fuel.

We believe this principle of heating coaches to be the correct one, and would be glad were all of our passenger cars heated by that method.

If there is any further information that I can furnish you in regard to this or any other matter, be kind enough to command me.

Yours truly,

G. M. BEACH, *General Manager.*

CLEVELAND, COLUMBUS, CINCINNATI & INDIANAPOLIS AND
INDIANAPOLIS & ST. LOUIS RAILWAYS,
CLEVELAND, OHIO, Dec. 10, 1886.

MR. WILLIAM CRAFTS, *Clerk Board of Railroad Commissioners, Commonwealth of Massachusetts, Boston, Mass.*

DEAR SIR:—In reply to your favor of November 29th, duly received, I would say that I still entertain the same favorable opinion of the Martin Anti-Fire Car Heater.

It continues in service on our road between Springfield and Cincinnati and is giving satisfaction in every respect.

Yours truly,

G. M. BEACH, *General Manager.*

The system has been in full use for four years on the Dunkirk, Allegheny Valley and Pittsburgh Railroad. Abundant warmth was obtained even when the thermometer ranged from five to twenty degrees below zero; and only a moderate amount of pressure was required. It is claimed that there is no danger of scalding by escaping steam in case of accident.

The experiments of Mr. Emerson in applying steam heat to cars on the Connecticut River Railroad have been watched with great interest; and the ingenuity and pertinacity of the inventor seem to have met a great measure of success.

The Commissioners have been greatly interested in the efforts of the Boston & Albany Railroad Company to solve the problem of heating cars without fire, — an experiment which,

up to this date, lacks nothing of thoroughness, except the want of extremely cold weather, to test its worth. Five cars make daily trips, except on Sundays, from Boston to Springfield and return, with an even temperature and with sufficient warmth without exhausting power, and apparently without danger. The result seems to have been in all respects satisfactory. When this has been done for another season the experimental stage of the improvement will have passed. Then the question may be to what extent the adoption of this safeguard will be required by law.

Power Brakes.

Power brakes for freight cars are appliances that are demanded as a matter of economy, and still more for the sake of safety. Their use on such roads as the Atchison, Topeka & Santa Fé, and the Chicago, Burlington & Quincy Railroads answers all questions as to the feasibility and desirability of the device. We believe that the time has come for its general use on our railroads. Here, too, the question of inter-state commerce will arise. Few points, if any, will be regarded as more important than that inter-state commerce should be conducted with the utmost possible safety to life and limb.

Safety Valves,

which prevent the escape of steam and of scalding water in case of accident, have been devised for the security of train-men and passengers. The Board have already referred to the terrible array of figures which Mr. Forney presented a short time ago, showing the deaths or serious injury of 162 persons by scalding within a period of a year and a half, all resulting from six railroad accidents. Much of this suffering and death could have been saved by the adoption of well-known devices. The Board renews the expression of its belief that a preventible accident is a crime.

Guard Rail on Box Cars.

“ A Resolve relating to the protection of brakemen on freight trains ” was passed in 1886, as follows : —

Resolved, That the Board of Railroad Commissioners be instructed to investigate whether there is need of legislation to provide further

securities for brakemen while operating freight trains, and especially whether box freight cars ought to be furnished with guard rails on the sides thereof; and report the result of their investigations to the next General Court. [*Approved April 9, 1886.*]

A public hearing was advertised for June 14.

No one appeared to advocate any legislation. A few railroad officials opposed action upon the grounds that it was needless, expensive and injurious to the cars, rendering them liable to leakage. It was also urged that, as other States were not affected by our laws, such an act would only afford partial protection, and might even be a source of danger to those who should rely upon such a safeguard in cases where none was provided.

The Commissioners, while inspecting the roads of the State, have made full inquiries of all classes of officials and employees as to the need and probable value of the proposed guards. We have not found any general desire to have them adopted. Very little information has been obtained as to accidents, which would have been prevented by the use of a rail. Indeed accidents by falling from the sides of cars are very rare. The more frequent and more dangerous casualties of falling from the ends of cars would not be obviated or reduced by this device. A rail across the ends of box cars would be a grave source of danger, and would not be advocated by any one conversant with the subject.

Considering the absence of any demand for legislation on the part of those who are supposed to be benefited by it, and regarding the slight advantage to be derived from the proposal as compared with other possible improvements, the Board are not prepared to recommend any action by the Legislature.

FREIGHT RATES ON THE HOUSATONIC RAILROAD.

Chapter 338 of the Acts of 1885 gave to the Board authority to fix freight rates on certain roads operated by the Housatonic Railroad Company. After the fixing of such rates, and the violation of our order by the company, a suit was begun by the district attorney of the western district, acting under direction of the Attorney-General. Upon an agreed statement of facts, judgment was given against the company

upon the ten counts of the indictment, and the case was taken to the Supreme Court of this State, where it is now pending.

Some of the counts may be affected by the recent decision of the Supreme Court of the United States in the case of *Wabash, St. Louis & Pacific Railway Company v. Illinois*. This case is of general interest, and may render some new legislation desirable.

The suit grew out of the Illinois short-haul law. That law differs from ours, and would never have received the approval of our Legislature or of this Board. The question involved in this suit, however, was in no way affected by that difference, but relates only to the matter of inter-state commerce, and overrules the law as laid down by Chief Justice Waite in *Peik v. Chicago N. W. R. Co.*, 94 U. S. 164, where it was held that, until Congress acts in regard to inter-state commerce, the State had a right to regulate rates as to freight "taken up outside the State and brought within it, or taken up inside and carried without."

The Board has had occasion to remark heretofore that this case, while binding upon us as long as it stood as a decision of the highest court in the land, was liable to be overruled. It is now overruled, and Justice Miller states that the court never "consciously and deliberately" assented to the doctrine laid down by Chief Justice Waite in the former case. The Chief Justice, with Justices Gray and Bradley, dissent from the decision of the majority; but this, of course, does not affect its validity. It is enough that a majority overrule the decision pronounced by the Chief Justice.

The decision does not deal with any question as to the right of a State to supervise corporations of its own creation, or exercising franchises within its borders only at its will. Neither does it disturb that portion of the former decision which affirms so strongly the power of government to deal with fares and freight rates and facilities.

At the time when this case was decided complaints were pending before the Board against the New London Northern Railroad Company for exacting higher rates for freight shipped at Chicago, and "stopped off" at Amherst and Belchertown, than was charged for like freight carried from Chicago to Willimantic, thus apparently violating "the short-haul law."

Action on these complaints was given up because of the decision in *Wabash, St. Louis & Pacific Railway v. Illinois*. Amherst and Belchertown are not "billing points" on the line in question. It is not known that any case has arisen in this State where the old practice has been revived of charging the through rate, and adding the local return rate for freight "stopped off" on its way to a more distant place. If any such case should occur, it will perhaps be possible to frame a law to forbid the practice even under the recent decision. Its immediate effect will probably be to hasten congressional action upon the subject of inter-state commerce, with consequences, which it is difficult to foresee in full.

ACTION AS TO THE MEIGS ELEVATED RAILWAY COMPANY.

By chapter 87, Acts of 1884, it is provided that "No location [of the Meigs Elevated Railway] for tracks shall be petitioned for in the city of Boston until at least one mile of the road has been built and operated, nor until the safety and strength of the structure and the rolling stock and motive power shall have been examined and approved by the Board of Railroad Commissioners or by a competent engineer to be appointed by them, and to be paid by said corporation a price fixed by said Board."

After examining the structure, rolling stock and motive power of the Meigs Elevated Railway as they existed Oct. 27, 1886, the Board appointed Gen. George Stark of New Hampshire, a competent and independent civil engineer, to act upon the approval of the structure, rolling stock and motive power. His report is given in full (Appendix I.), and the Commissioners approve it, and will in due time take formal action upon the points submitted to the Board.

BRIDGE OVER ROWLEY RIVER.

The Railroad Commissioners and the Harbor and Land Commissioners, sitting as a joint commission under the provisions of chapter 261, Acts of 1886, after due notice, gave a hearing to all persons interested in or affected by the maintenance of a draw in the bridge of the Eastern Railroad over Rowley River; and having considered all the facts and the public interests in the matter, authorized the Eastern Railroad Company to re-

construct the bridge without a draw, subject, however, to the condition that the General Court may, at any time hereafter, require the company or its successors to construct and maintain a draw, and that they "shall at all times and in all respects conform to the directions and requirements of the General Court in relation hereto."

THE TROY AND GREENFIELD RAILROAD.

The annual hearing by the Board, under the contract with the Fitchburg Railroad Company for operating the State road, showed the following result for the year ending Sept. 30, 1885:—

| | |
|--|--------------|
| Gross revenue, | \$452,019 12 |
| Gross earnings, | 416,566 31 |
| Expenses, | 208,186 65 |
| Balance due the State, | 208,379 66 |
| Amount already paid the State by the Fitchburg Railroad Company, | 207,860 61 |
| Amount due the State by the Fitchburg Railroad Company, | 519 05 |

The operating expenses are 49.977 per cent. of the gross earnings, against 54.39 the previous year. This percentage applies by contracts to the other railroad companies engaged in operating the State road.

The Fitchburg Railroad Company claimed as expenses \$220,013.53, which would have entitled it to 52.816 per cent. of the gross earnings of \$416,566.31.

The appeals against the awards heretofore made by the Board have all been waived by the Fitchburg Railroad Company.

As usual, the most interesting portion of the annual report is found in the special reports upon the various questions which come from time to time before the Board. And more numerous, and perhaps more important than these, are the matters which have been acted upon finally without formal hearings.

THOMAS RUSSELL.
E. W. KINSLEY.
E. A. STEVENS.

APPENDIX.

[A.]
Receipts of Flour in Boston during Ten Years, ending Sept. 30.

| FLOUR — BARRELS. | | | | | | | | | | |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1877. | 1878. | 1879. | 1880. | 1881. | 1882. | 1883. | 1884. | 1885. | 1886. |
| Boston & Albany Railroad, . | 830,514 | 784,149 | 536,767 | 462,852 | 629,355 | 569,692 | 699,553 | 610,673 | 667,148 | 520,810 |
| Boston & Lowell Railroad, . | 138,914 | 121,416 | 191,265 | 236,443 | 160,704 | 104,376 | 133,491 | 132,825 | 186,304 | 119,324 |
| Fitchburg Railroad, . | 129,687 | 248,566 | 478,852 | 549,354 | 869,971 | 777,466 | 1,268,605 | 1,514,586 | 1,172,335 | 1,747,500 |
| Grand Junction (B. & A. R. R.), | 364,377 | 447,518 | 600,184 | 936,783 | 911,357 | 608,133 | 1,110,564 | 1,107,960 | 1,193,323 | 894,118 |
| N. Y. & New England R. R., | — | — | 89,327 | 89,542 | 190,169 | 227,576 | 331,391 | 278,944 | 101,214 | 69,011 |
| Total by through lines from West, | 1,463,492 | 1,601,649 | 1,896,395 | 2,274,974 | 2,761,556 | 2,347,243 | 3,543,604 | 3,642,788 | 3,320,324 | 3,350,763 |
| Boston & Maine Railroad, . | 43,935 | 32,092 | 42,631 | 28,361 | 29,227 | 13,343 | 16,126 | 9,383 | 1,462 | 1,431 |
| Boston & Providence R. R., | 11,679 | 3,084 | 1,387 | 4,421 | 4,241 | 3,588 | 5,548 | 1,876 | 349 | 1,091 |
| Eastern Railroad, | — | — | 2,985 | 6,064 | 11,335 | 4,732 | 9,950 | 11,776 | 1,580 | — |
| Old Colony Railroad, | 841 | 2,685 | 2,162 | 3,392 | 3,646 | 5,115 | 4,390 | 3,218 | 1,911 | 3,414 |
| Portland Steamer, | 2,299 | 220 | 182 | 150 | 1,893 | 352 | 459 | 187 | 25 | 905 |
| New York Steamer, | 132,062 | 111,083 | 120,382 | 80,125 | 18,642 | 2,121 | 991 | 6,130 | 1,857 | 3,963 |
| Baltimore Steamer, | 40,496 | 20,047 | 9,364 | 15,941 | 16,162 | 4,907 | 7,562 | 21,648 | 12,574 | 13,196 |
| Philadelphia Steamer, | 7,069 | 5,053 | 1,045 | 1,022 | 300 | 1,625 | 10 | 1,370 | 250 | 274 |
| New Orleans Steamer, | — | — | — | 697 | — | — | 225 | — | — | — |
| Sail-Vessels, | — | 1,310 | 300 | 400 | — | — | 1,823 | 4,937 | 2,741 | 135 |
| Other Sources, | 1,200 | — | — | — | — | — | — | — | — | — |
| Total from Seaboard, | 239,581 | 175,574 | 180,438 | 140,573 | 85,646 | 35,783 | 47,084 | 62,725 | 22,779 | 24,409 |
| Total from all Sources, . . . | 1,703,073 | 1,777,223 | 2,076,833 | 2,418,859 | 2,853,079 | 2,383,026 | 3,590,688 | 3,705,513 | 3,343,103 | 3,375,172 |

Increase, 32,069 barrels, — .9 per cent.

Receipts of Corn in Boston during Ten Years, ending Sept. 30.

| CORN — BUSHELS. | | | | | | | | | | |
|--------------------------------------|-----------|-----------|------------|------------|------------|-----------|------------|------------|-----------|-----------|
| | 1877. | 1878. | 1879. | 1880. | 1881. | 1882. | 1883. | 1884. | 1885. | 1886. |
| Boston & Albany Railroad, | 1,336,180 | 1,219,245 | 1,006,160 | 659,467 | 1,349,388 | 807,175 | 927,490 | 1,041,605 | 1,603,457 | 1,380,395 |
| Boston & Lowell Railroad, | 534,732 | 534,849 | 617,026 | 3,836,219 | 794,534 | 1,355,529 | 571,595 | 510,214 | 408,400 | 226,370 |
| Fitchburg Railroad, | 1,328,430 | 2,003,559 | 3,472,195 | 2,897,389 | 3,659,457 | 2,640,372 | 4,111,500 | 3,876,725 | 3,764,185 | 4,399,160 |
| Grand Junction (B. & A. R.R.), | 1,731,836 | 5,799,140 | 5,855,850 | 7,328,338 | 8,560,384 | 3,170,842 | 3,386,291 | 4,193,700 | 2,987,880 | 2,185,400 |
| N. Y. & New England R.R., | - | - | 23,695 | 29,060 | 177,519 | 329,114 | 843,554 | 363,637 | 38,051 | 76,551 |
| Total by through lines from West, | 7,931,178 | 9,556,793 | 11,014,926 | 14,750,473 | 14,541,282 | 8,303,032 | 9,840,430 | 9,985,881 | 8,801,973 | 8,267,876 |
| Boston & Maine Railroad, | 49,657 | 70,599 | 144,295 | 202,752 | 257,841 | 255,295 | 305,077 | 124,635 | 6,150 | 60,386 |
| Boston & Providence R.R., | - | - | 120 | - | - | - | 700 | 800 | 500 | 1,170 |
| Eastern Railroad, | - | - | 11,300 | 5,700 | 2,500 | 7,050 | 16,270 | 6,664 | 1,425 | - |
| Old Colony Railroad, | - | - | - | - | - | 7,650 | 5,300 | 5,450 | 500 | 1,100 |
| Portland Steamer, | - | - | - | - | - | - | - | - | - | - |
| New York Steamer, | 8,332 | 6,500 | - | - | - | 5,000 | - | - | - | - |
| Baltimore Steamer, | 6,086 | 1,492 | 6,400 | 76 | - | 10,811 | 15,712 | 32,942 | 6,498 | 4,816 |
| Philadelphia Steamer, | 6,766 | 8,682 | - | - | - | - | - | - | - | 240 |
| New Orleans Steamer, | - | - | - | - | - | - | 16,444 | - | 1,500 | - |
| Sail-Vessels, | 17,926 | 16,186 | 6,000 | - | 200 | 8,000 | *72,891 | 5,416 | - | - |
| Other Sources, | - | - | - | - | - | - | - | - | - | - |
| Total from Seaboard, | 88,767 | 103,459 | 168,115 | 208,528 | 260,541 | 293,806 | 432,394 | 175,907 | 16,573 | 67,712 |
| Total from all Sources, | 8,019,495 | 9,660,252 | 11,183,041 | 14,959,001 | 14,801,823 | 8,596,838 | 10,272,824 | 10,161,788 | 8,818,546 | 8,335,588 |

Decrease, 482,958 bushels, — .54 per cent.

* Savannah Steamer.

Receipts of Oats in Boston during Ten Years, ending Sept. 30.

| OATS — BUSHEL8. | | | | | | | | | | |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1877. | 1878. | 1879. | 1880. | 1881. | 1882. | 1883. | 1884. | 1885. | 1886. |
| Boston & Albany Railroad, . . . | 791,638 | 656,349 | 728,634 | 604,310 | 1,094,476 | 1,411,900 | 1,332,825 | 1,754,628 | 2,170,405 | 2,179,530 |
| Boston & Lowell Railroad, . . . | 223,729 | 202,823 | 256,548 | 181,636 | 201,602 | 469,327 | 163,421 | 78,876 | 487,889 | 474,539 |
| Fitchburg Railroad, . . . | 1,718,324 | 1,807,810 | 1,828,720 | 1,994,597 | 1,751,469 | 1,615,072 | 2,734,844 | 3,124,318 | 2,877,370 | 4,695,640 |
| Grand Junction (B. & A. R. R.), . . | 416,190 | 377,400 | 592,235 | 720,454 | 663,000 | 472,450 | 558,200 | 702,250 | 463,700 | 194,670 |
| N. Y. & New England R. R., . . . | - | - | 22,600 | 32,341 | 46,650 | 163,000 | 93,118 | 85,260 | 33,722 | 19,615 |
| Total by through lines } from West, . . . } | 3,149,881 | 3,044,372 | 3,428,787 | 3,533,338 | 3,757,197 | 4,131,749 | 4,882,408 | 5,745,332 | 6,033,086 | 7,563,994 |
| Boston & Maine Railroad, . . . | 12,796 | 53,433 | 23,350 | 46,442 | 21,050 | 103,875 | 28,400 | 5,925 | 7,575 | 4,182 |
| Boston & Providence R. R., . . . | - | - | - | - | - | - | - | - | - | - |
| Eastern Railroad, . . . | - | - | 5,700 | 12,950 | 8,100 | 138,835 | 20,005 | 7,100 | 400 | - |
| Old Colony Railroad, . . . | - | - | - | - | - | 2,750 | 800 | 3,100 | 600 | 2,325 |
| Portland Steamer, . . . | 1,440 | - | - | - | - | - | - | - | - | - |
| New York Steamer, . . . | - | - | - | - | - | - | - | - | - | - |
| Baltimore Steamer, . . . | 1,300 | - | - | - | - | - | - | 1,437 | - | - |
| Philadelphia Steamer, . . . | 4,566 | - | - | - | - | - | - | - | - | - |
| New Orleans Steamer, . . . | - | - | - | - | - | - | - | - | - | - |
| Sail-Vessels, . . . | - | - | - | - | - | - | - | - | - | - |
| Other Sources, . . . | - | - | - | - | - | - | - | - | 2,968 | - |
| Total from Seaboard, . . . | 20,092 | 53,433 | 29,050 | 59,392 | 29,150 | 245,460 | 49,205 | 17,562 | 11,543 | 6,507 |
| Total from all Sources, . . . | 3,169,973 | 3,097,805 | 3,457,787 | 3,592,730 | 3,786,347 | 4,372,209 | 4,931,613 | 5,762,894 | 6,044,629 | 7,570,501 |

Increase, 1,525,872 bushels, — 25 per cent.

Receipts of Wheat in Boston during Ten Years, ending Sept. 30.

| WHEAT — BUSHELS. | | | | | | | | | | |
|--------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| | 1877. | 1878. | 1879. | 1880. | 1881. | 1882. | 1883. | 1884. | 1885. | 1886. |
| Boston & Albany Railroad, | 264,275 | 130,618 | 174,310 | 65,691 | 50,525 | 28,700 | 36,005 | 24,900 | 91,855 | 40,919 |
| Boston & Lowell Railroad, | 38,800 | 298,654 | 916,431 | 981,761 | 337,253 | 250,641 | 198,731 | 94,666 | 106,968 | 199,574 |
| Fitchburg Railroad, | 50,870 | 233,416 | 1,306,085 | 724,743 | 994,446 | 918,763 | 990,289 | 842,662 | 1,193,555 | 730,443 |
| Grand Junction (B. & A. R.R.), | 678,380 | 3,441,910 | 2,753,450 | 2,436,921 | 2,832,769 | 1,458,400 | 1,037,170 | 722,100 | 871,300 | 1,127,371 |
| N. Y. & New England R.R., | - | - | 7,568 | 34,232 | 955 | 175,400 | 295,100 | 103,074 | - | 121 |
| Total by through lines from West, | 1,032,325 | 4,104,598 | 5,157,844 | 4,243,348 | 4,215,948 | 2,831,904 | 2,557,295 | 1,787,402 | 2,263,678 | 2,098,428 |
| Boston & Maine Railroad, | 112 | 400 | 27,448 | 53,522 | 23,932 | 37,884 | 17,957 | 10,400 | - | 1,088 |
| Boston & Providence R. R., | 1,614 | 770 | 1,001 | 102 | - | - | 10,000 | 600 | - | - |
| Eastern Railroad, | - | - | - | - | - | 800 | 1,015 | 1,400 | 600 | - |
| Old Colony Railroad, | - | - | - | - | - | 500 | - | - | - | - |
| Portland Steamer, | - | - | - | - | - | - | - | - | - | - |
| New York Steamer, | 150 | 2,452 | - | - | - | - | - | - | - | - |
| Baltimore Steamer, | 163 | - | - | - | - | - | - | - | - | - |
| Philadelphia Steamer, | - | - | - | - | - | - | - | - | - | - |
| New Orleans Steamer, | - | - | - | - | - | - | - | - | - | - |
| Sail-Vessels, | 46,333 | 35,017 | - | - | - | - | - | 4,500 | - | - |
| Other Sources, | - | - | - | - | - | - | - | - | - | - |
| Total from Seaboard, | 48,372 | 38,639 | 28,449 | 53,624 | 23,932 | 39,184 | 28,972 | 16,900 | 600 | 1,088 |
| Total from all Sources, | 1,080,697 | 4,143,237 | 5,186,293 | 4,296,972 | 4,239,880 | 2,871,088 | 2,586,267 | 1,804,302 | 2,264,278 | 2,099,516 |

Decrease, 164,762 bushels, — 7 per cent.

Summary of Grain Receipts in Boston during Ten Years.

| | Flour — Barrels. | Corn — Bushels. | Oats — Bushels. | Wheat — Bushels. |
|-------------|------------------|-----------------|-----------------|------------------|
| 1877, . . . | 1,703,073 | 8,019,495 | 3,169,973 | 1,080,697 |
| 1878, . . . | 1,777,223 | 9,660,252 | 3,097,805 | 4,143,237 |
| 1879, . . . | 2,076,833 | 11,183,041 | 3,457,787 | 5,186,293 |
| 1880, . . . | 2,418,859 | 14,959,001 | 3,592,730 | 4,296,972 |
| 1881, . . . | 2,853,079 | 14,801,823 | 3,786,347 | 4,239,880 |
| 1882, . . . | 2,383,026 | 8,596,838 | 4,377,209 | 2,871,088 |
| 1883, . . . | 3,590,688 | 10,272,824 | 4,931,613 | 2,586,267 |
| 1884, . . . | 3,705,513 | 10,161,788 | 5,762,894 | 1,804,302 |
| 1885, . . . | 3,343,103 | 8,818,546 | 6,044,629 | 2,264,278 |
| 1886, . . . | 3,375,172 | 8,335,588 | 7,570,501 | 2,099,516 |

[B.]

Tabular Statement of Accidents reported to the Board of Railroad Commissioners during Year ending Sept. 30, 1886.

| RAILROADS. | GENERAL STATEMENT. | | | | | | | PASSENGERS. | | | |
|---|----------------------------------|-------------|------------|----------------------------------|--------------|-----------|---------|-------------|----------|-------------------------------------|----------|
| | Whole Number of Persons Injured. | Passengers. | Employees. | At Grade Crossings and Stations. | Trespassers. | Children. | Adults. | Killed. | Injured. | By Causes beyond their own Control. | |
| | | | | | | | | | | Killed. | Injured. |
| Boston & Albany, | 103 | 12 | 43 | 9 | 39 | 5 | 98 | 31 | 72 | - | - |
| Boston & Lowell, | 68 | 10 | 34 | 4 | 20 | 9 | 59 | 26 | 42 | - | - |
| Boston & Maine, | 98 | 21 | 32 | 9 | 36 | 9 | 89 | 39 | 59 | 3 | 6 |
| Boston & Providence, | 15 | 2 | 2* | 6 | 5 | 3 | 12 | 10 | 5 | - | - |
| Fitchburg, | 114 | 8 | 76 | 8 | 22 | 8 | 106 | 26 | 88 | - | - |
| New York & New England, | 53 | 9 | 30 | 3 | 11 | 4 | 49 | 10 | 43 | 1 | 1 |
| Old Colony, | 45 | 5 | 23 | - | 17 | 2 | 43 | 24 | 21 | - | - |
| Boston, Winthrop & Shore, | - | - | - | - | - | - | - | - | - | - | - |
| Cheshire, | - | - | - | - | - | - | - | - | - | - | - |
| Connecticut River, | - | - | - | - | - | - | - | - | - | - | - |
| Hanover Branch, | - | - | - | - | - | - | - | - | - | - | - |
| Milford & Woonsocket, | 3 | 1 | 1 | - | 1 | - | 3 | - | 3 | - | - |
| Nantasket Beach, | - | - | - | - | - | - | - | - | - | - | - |
| New Haven & Northampton, | 5 | 1 | 3 | 1 | - | - | 5 | 5 | - | 1 | - |
| New London Northern, | - | - | - | - | - | - | - | - | - | - | - |
| New York, New Haven & Hartford, | 3 | - | 2 | 1 | - | - | 3 | 3 | - | - | - |

[illegible]

* One a licensed newsboy.

† One a cattle-tender on freight train.

Tabular Statement of Accidents, etc. — Concluded.

| RAILROADS. | AT GRADE CROSSINGS. | | | | AT STATIONS. | | TRESPASSERS. | | | | |
|---|------------------------|---------------------------|---------|----------|--------------|----------|----------------------|---------------------|---------|----------|-------------------|
| | With Gates or Flagman. | Without Gates or Flagman. | Killed. | Injured. | Killed. | Injured. | Unlawfully on Track. | Unlawfully on Cars. | Killed. | Injured. | Apparent Suicide. |
| Boston & Albany, | 2 | 4 | 2 | 4 | 1 | 2 | 29 | 10 | 15 | 24 | 2 |
| Boston & Lowell, | — | 1 | 1 | — | 3 | — | 11 | 9 | 11 | 9 | — |
| Boston & Maine, | 5 | 4* | 7 | 2 | — | — | 33 | 3 | 22 | 14 | — |
| Boston & Providence, | 5 | 2 | 3 | — | 2 | 1 | 5 | — | 4 | 1 | — |
| Fitchburg, | 4 | 4 | 3 | 5 | — | — | 17 | 5 | 13 | 9 | — |
| New York & New England, | 3 | — | 2 | 1 | — | — | 11 | — | 4 | 7 | — |
| Old Colony, | — | — | — | — | — | — | 15 | 2 | 15 | 2 | 1 |
| Boston, Winthrop & Shore, | — | — | — | — | — | — | — | — | — | — | — |
| Cheshire, | — | — | — | — | — | — | — | — | — | — | — |
| Connecticut River, | — | — | — | — | — | — | — | — | — | — | — |
| Hanover Branch, | — | — | — | — | — | — | — | — | — | — | — |
| Millford & Woonsocket, | — | — | — | — | — | — | — | — | — | — | — |
| Nantasket Beach, | — | — | — | — | — | — | 1 | — | — | 1 | — |
| New Haven & Northampton, | — | 1 | 1 | — | — | — | — | — | — | — | — |
| New London Northern, | — | — | — | — | — | — | — | — | — | — | — |
| New York, New Haven & Hartford, | — | 1 | 1 | — | — | — | — | — | — | — | — |
| Norwich & Worcester, | — | 1 | — | 1 | — | — | — | — | — | — | — |
| Providence & Worcester, | — | 2 | 2 | — | — | — | — | — | — | — | — |
| Troy & Greenfield, | — | — | — | — | — | — | 4 | — | 4 | 1 | — |
| Worcester, Nashua & Rochester, | — | — | — | — | — | — | 2 | — | 1 | — | — |

| | | | | | | | | | | | |
|-----------------------------------|----|----|----|----|---|---|-----|----|----|----|---|
| Housatonic, of Connecticut, . . . | 15 | 20 | 22 | 13 | 6 | 3 | 130 | 29 | 91 | 68 | 3 |
| Boston, Revere Beach & Lynn, . . | - | - | - | - | - | - | 1 | - | 1 | - | - |
| Grafton Centre, . . . | - | - | - | - | - | - | - | - | - | - | - |
| Martha's Vineyard, . . . | - | - | - | - | - | - | - | - | - | - | - |
| Nantucket, . . . | - | - | - | - | - | - | - | - | - | - | - |
| Worcester & Shrewsbury, . . . | - | - | - | - | - | - | 1 | - | 1 | - | - |
| Housatonic, . . . | - | - | - | - | - | - | - | - | - | - | - |
| | 15 | 20 | 22 | 13 | 6 | 3 | 130 | 29 | 91 | 68 | 3 |

* At crossing, with gates not closed.

*Train Accidents Reported to the Board of Railroad Commissioners
during the Year ending Sept. 30, 1886.*

| ACCIDENTS. | Number. | Persons Killed. | Persons Injured. |
|---|---------|-----------------|------------------|
| COLLISIONS. | | | |
| <i>Rear.</i> | | | |
| Passenger train with empty cars on siding, by misplaced switch, | 4 | 1 | 4 |
| Passenger train with freight train on main track, | 1 | - | 6 |
| Passenger train with freight train on siding, but not clearing main track, | 1 | - | - |
| Passenger train with coal car pushed or blown upon main track, | 1 | - | - |
| Construction train with extra freight train, | 1 | - | - |
| Rear of parted freight train with forward part, | 1 | - | - |
| Loaded freight car parted from train with empty car, | 1 | - | - |
| <i>Butting.</i> | | | |
| Passenger train with empty cars being switched from main track, | 1 | - | - |
| Passenger train leaving station with empty train coming in, | 1 | - | - |
| <i>Crossing.</i> | | | |
| Passenger train on branch with passenger train on main line, at junction, | 1 | 1 | 6 |
| | 13 | 2 | 16 |
| DERAILMENTS.* | | | |
| Passenger train, by sliding of embankment, | 1 | 11 | 29 |
| Passenger train, by land slide, | 1 | - | - |
| Freight train, by washout, | 1 | 1 | 1 |
| Freight train, by fallen rock, | 1 | - | - |
| Passenger train, by reason of interlocking signal, and switch being deranged, | 1 | - | - |
| Freight train, cause not stated, | 1 | - | - |
| | 6 | 12 | 30 |

* Derailments causing slight damage, and no serious delay of passenger trains, are not reported. In the accidents included in the above table, where there were no casualties to persons there was greater or less delay of passenger trains and damage to rolling stock.

Tubular Statement of Accidents reported to the Board of Railroad Commissioners during Ten Years.

| | GENERAL STATEMENT. | | | | | | | | PASSENGERS. | | | | EMPLOYERS. | | |
|-----------------------------|--|-------------|------------|------------------------------------|--------------|-----------|---------|--------|-------------|---------------------------------------|--------------------------------|--------|------------|------------|------------------|
| | Whole number of Casualties to Persons. | Passengers. | Employees. | At Highway Crossings and Stations. | Trespassers. | Children. | Adults. | Fatal. | Not Fatal. | From Causes beyond their own Control. | From the Irregularity of Care. | Fatal. | Not Fatal. | Train-men. | Other Employees. |
| Year ending Sept. 30, 1877, | 274 | 33 | 95 | 37 | 109 | 26 | 248 | 134 | 140 | 9 | 24 | 7 | 26 | 65 | 30 |
| “ “ 1878, | 304 | 38 | 96 | 37 | 133 | 37 | 267 | 150 | 154 | 2 | 36 | 10 | 28 | 68 | 28 |
| “ “ 1879, | 405 | 208 | 83 | 32 | 82 | 25 | 380 | 115 | 290 | 186 | 23 | 21 | 188 | 71 | 12 |
| “ “ 1880, | 346 | 24 | 157 | 54 | 111 | 24 | 322 | 146 | 200 | 1 | 23 | 9 | 15 | 113 | 44 |
| “ “ 1881, | 415 | 42 | 200 | 47 | 126 | 23 | 392 | 184 | 231 | 11 | 31 | 15 | 27 | 167 | 33 |
| “ “ 1882, | 414 | 27 | 198 | 57 | 132 | 29 | 385 | 163 | 251 | 4 | 22 | 9 | 15 | 158 | 40 |
| “ “ 1883, | 524 | 61 | 266 | 50 | 147 | 33 | 491 | 191 | 333 | 1 | 24 | 14 | 21 | 192 | 73 |
| “ “ 1884, | 457 | 76 | 182 | 38 | 161 | 33 | 424 | 181 | 276 | 44 | 32 | 14 | 62 | 139 | 43 |
| “ “ 1885, | 517 | 74 | 233 | 55 | 152 | 28 | 486 | 163 | 351 | 12 | 62 | 14 | 60 | 191 | 42 |
| “ “ 1886, | 583 | 107 | 273 | 44 | 159 | 43 | 540 | 201 | 382 | 45 | 62 | 20 | 87 | 212 | 61 |
| Total, . . . | 4,239 | 690 | 1,783 | 451 | 1,312 | 331 | 3,935 | 1,628 | 2,608 | 315 | 339 | 133 | 529 | 1,356 | 406 |
| Average, . . . | 423.9 | 69.0 | 178.3 | 45.1 | 131.2 | 33.1 | 393.5 | 162.8 | 260.8 | 31.5 | 33.9 | 13.3 | 52.9 | 135.6 | 40.6 |

Tabular Statement of Accidents, etc., during Ten Years — Concluded.

| | EMPLOYEES — Concluded. | | | | | | | AT HIGHWAY CROSSINGS. | | | | AT STATIONS. | | TRESPASSERS. | | | | |
|-----------------------------|------------------------------|---------------------|---------------------|---------------------|-----------------|--------|------------|------------------------|---------------------------|--------|------------|--------------|------------|----------------------------|----------------------------|--------|------------|----------|
| | Coupling or uncoupling Cars. | By Overhead Bridge. | By Train Accidents. | Falling from Train. | Various Causes. | Fatal. | Not Fatal. | With Gates or Flagmen. | Without Gates or Flagmen. | Fatal. | Not Fatal. | Fatal. | Not Fatal. | Walking or lying on track. | Unlawfully riding on Cars. | Fatal. | Not Fatal. | Outside. |
| | | | | | | | | | | | | | | | | | | |
| Year ending Sept. 30, 1877, | 25 | 5 | 21 | 18 | 26 | 35 | 60 | 12 | 21 | 19 | 14 | 2 | 2 | 79 | 30 | 71 | 38 | 8 |
| “ “ 1878, | 24 | 10 | 15 | 15 | 32 | 34 | 62 | 12 | 17 | 20 | 9 | 3 | 5 | 102 | 31 | 84 | 49 | 3 |
| “ “ 1879, | 25 | 7 | 8 | 24 | 19 | 28 | 55 | 13 | 17 | 13 | 17 | 1 | 1 | 70 | 12 | 54 | 28 | 5 |
| “ “ 1880, | 43 | 12 | 21 | 47 | 34 | 49 | 108 | 20 | 30 | 19 | 31 | 1 | 3 | 93 | 18 | 72 | 40 | 4 |
| “ “ 1881, | 59 | 28 | 18 | 46 | 48 | 72 | 128 | 12 | 24 | 11 | 25 | 5 | 6 | 104 | 22 | 81 | 45 | 3 |
| “ “ 1882, | 60 | 18 | 15 | 43 | 62 | 56 | 142 | 25 | 29 | 21 | 33 | 3 | — | 109 | 23 | 75 | 57 | 7 |
| “ “ 1883, | 86 | 14 | 13 | 55 | 97 | 62 | 203 | 18 | 26 | 15 | 29 | 4 | 2 | 112 | 33 | 93 | 54 | 3 |
| “ “ 1884, | 68 | 12 | 11 | 35 | 56 | 47 | 135 | 19 | 13 | 13 | 19 | 4 | 2 | 126 | 35 | 104 | 57 | 4 |
| “ “ 1885, | 91 | 10 | 19 | 42 | 70 | 29 | 204 | 20 | 30 | 23 | 27 | 1 | 3 | 120 | 32 | 93 | 59 | 3 |
| “ “ 1886, | 107 | 8 | 25 | 55 | 78 | 62 | 211 | 15 | 20 | 22 | 13 | 6 | 3 | 130 | 29 | 91 | 68 | 3 |
| Total, . . . | 588 | 124 | 166 | 380 | 522 | 474 | 1,308 | 166 | 227 | 176 | 217 | 30 | 27 | 1,045 | 265 | 837 | 495 | 43 |
| Average, . . . | 58.8 | 12.4 | 16.6 | 38.0 | 52.2 | 47.4 | 130.8 | 16.6 | 22.7 | 17.6 | 21.7 | 3.0 | 2.7 | 104.5 | 26.5 | 83.7 | 49.5 | 4.3 |

Tubular Statement of Accidents to Employees in Massachusetts during Ten Years.

| YEAR ENDING SEPT. 30. | 1877. | 1878. | 1879. | 1880. | 1881. | 1882. | 1883. | 1884. | 1885. | 1886. |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Injured by coupling cars, . . . | 25 | 24 | 25 | 43 | 49 | 60 | 86 | 68 | 91 | 107 |
| by overhead bridges, . . . | 5 | 10 | 7 | 12 | 28 | 18 | 14 | 12 | 12 | 8 |
| by train accidents, . . . | 21 | 15 | 8 | 19 | 18 | 15 | 13 | 11 | 19 | 25 |
| by falling from trains, . . . | 18 | 15 | 24 | 47 | 46 | 43 | 55 | 35 | 42 | 55 |
| by other causes, . . . | 26 | 30 | 17 | 34 | 47 | 62 | 97 | 56 | 69 | 78 |
| by explosion of locomotives, . . . | - | 2 | 2 | 2 | 2 | - | - | - | - | - |
| Totals, . . . | 95 | 96 | 83 | 157 | 200 | 198 | 265 | 182 | 233 | 273 |

[illegible]

Tubular Statement of Train Accidents, etc., in the United States in each Month during the year ending Sept. 30, 1886.

| | October. | November. | December. | January. | February. | March. | April. | May. | June. | July. | August. | September. | Total. |
|---|----------|-----------|-----------|----------|-----------|--------|--------|------|-------|-------|---------|------------|--------|
| ACCIDENTS WITHOUT DERAILMENT. | | | | | | | | | | | | | |
| Caused by— | | | | | | | | | | | | | |
| Accidental obstruction, | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 4 | 1 | 2 |
| Boiler explosion, | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 4 | 1 | 2 | 4 | 2 | 16 |
| Car burned while running, | 2 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 1 | 1 | 10 |
| Broken parallel-rod, | 2 | 2 | 2 | 1 | 4 | 2 | 1 | 1 | 1 | 1 | 4 | 4 | 24 |
| Broken axle or truck, | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Broken wheel or tire, | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 |
| Broken coupling, | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Cylinder-head blown out, | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Overhead bridge, | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Loose door on freight car, | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Falling rock in cut, | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Flue collapsed, | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Explosion of powder, | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Caving of tunnel, | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Runaway train, | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Steam-chest burst, | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Bridge-beam falling on track, | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 6 | 4 | 5 | 5 | 5 | 4 | 3 | 8 | 2 | 4 | 14 | 8 | 68 |
| Total number of train accidents in each month in 1885-86, | 123 | 96 | 74 | 94 | 98 | 81 | 66 | 93 | 75 | 91 | 115 | 135 | 1,141 |
| Total number of train accidents in each month in 1884-85, | 105 | 96 | 105 | 145 | 216 | 86 | 81 | 62 | 75 | 76 | 92 | 91 | 1,230 |

| | | | | | | | | | | | | | |
|---|-------|-------|-----|-------|-------|-----|-----|-----|-----|-----|-------|-------|--------|
| Total number of train accidents in each month in 1883-84, | 174 | 122 | 112 | 147 | 110 | 115 | 88 | 76 | 71 | 89 | 89 | 100 | 1,293 |
| Total number of train accidents in each month in 1882-83, | 136 | 125 | 148 | 168 | 184 | 142 | 106 | 120 | 91 | 119 | 145 | 158 | 1,641 |
| Total number of train accidents in each month in 1881-82, | 131 | 133 | 113 | 137 | 88 | 99 | 81 | 94 | 72 | 92 | 139 | 153 | 1,332 |
| Total number of train accidents in each month in 1880-81, | 120 | 145 | 135 | 223 | 149 | 113 | 63 | 85 | 73 | 12 | 129 | 144 | 1,381 |
| Total number of train accidents in each month in 1879-80, | 104 | 86 | 69 | 62 | 65 | 65 | 71 | 46 | 56 | 78 | 112 | 124 | 958 |
| Total number of train accidents in each month in 1878-79, | 61 | 68 | 63 | 113 | 88 | 61 | 50 | 37 | 64 | 81 | 79 | 78 | 843 |
| Total number of train accidents in each month in 1877-78, | 82 | 83 | 66 | 75 | 67 | 49 | 46 | 50 | 56 | 54 | 75 | 76 | 777 |
| Total number of train accidents in each month in 1876-77, | 103 | 96 | 88 | 147 | 56 | 58 | 69 | 46 | 49 | 53 | 98 | 84 | 947 |
| Total number of train accidents in each month from Sept. 30, 1876, to Sept. 30, 1886, | 1,104 | 1,041 | 983 | 1,277 | 1,114 | 897 | 711 | 680 | 659 | 823 | 1,035 | 1,114 | 11,438 |
| Derailment of passenger trains 1885-86, | 15 | 17 | 14 | 20 | 20 | 20 | 9 | 18 | 10 | 16 | 18 | 19 | 196 |
| Derailment of freight trains, | 40 | 40 | 18 | 34 | 41 | 35 | 30 | 40 | 41 | 33 | 31 | 50 | 433 |
| Number of persons killed, | 11 | 12 | 7 | 16 | 13 | 45 | 23 | 8 | 23 | 16 | 7 | 14 | 195 |
| Number of persons injured, | 45 | 72 | 98 | 36 | 126 | 116 | 91 | 62 | 44 | 33 | 67 | 59 | 849 |
| Collision between passenger trains, | 7 | 1 | 1 | 5 | 3 | 1 | 3 | 1 | 1 | 3 | 8 | 1 | 35 |
| Collision between passenger and freight trains, | 10 | 12 | 7 | 9 | 12 | 5 | 6 | 8 | 7 | 18 | 14 | 23 | 131 |
| Collision between freight trains, | 45 | 22 | 29 | 21 | 17 | 16 | 15 | 18 | 14 | 17 | 30 | 34 | 278 |
| Number of persons killed, | 25 | 27 | 23 | 23 | 6 | 3 | - | 8 | 7 | 7 | 15 | 28 | 172 |
| Number of persons injured, | 87 | 46 | 54 | 44 | 30 | 15 | 14 | 85 | 42 | 54 | 32 | 81 | 584 |

Tabular Statement of Train Accidents, etc., during the Year ending Sept. 30, 1886, — Concluded.

| | October. | November. | December. | January. | February. | March. | April. | May. | June. | July. | August. | September. | Total. |
|---|----------|-----------|-----------|----------|-----------|--------|--------|------|-------|-------|---------|------------|--------|
| Accidents without derailment: | | | | | | | | | | | | | |
| To passenger trains, | 3 | 3 | 2 | 2 | 3 | 3 | 1 | 3 | - | 2 | 7 | 6 | 35 |
| To freight trains, | 3 | 1 | 3 | 3 | 2 | 1 | 2 | 5 | 2 | 2 | 7 | 2 | 33 |
| Number of persons killed, | - | - | 1 | 2 | 2 | 1 | - | 7 | 3 | - | 9 | - | 25 |
| Number of persons injured, | 2 | - | 1 | 10 | 1 | - | - | 23 | - | 1 | 18 | 8 | 64 |
| Total number of accidents each month, | 123 | 96 | 74 | 94 | 98 | 81 | 66 | 93 | 75 | 91 | 115 | 135 | 1,141 |
| Total number of persons killed in each month, | 36 | 19 | 31 | 41 | 21 | 49 | 23 | 23 | 38 | 23 | 31 | 42 | 366 |
| Total number of persons injured in each month, | 134 | 118 | 153 | 90 | 157 | 131 | 105 | 170 | 86 | 88 | 117 | 148 | 1,497 |
| Number of accidents causing death to persons in each month, | 17 | 14 | 19 | 19 | 16 | 18 | 10 | 13 | 12 | 14 | 20 | 18 | 190 |
| Number of accidents causing injury, but not death, | 26 | 26 | 20 | 16 | 19 | 21 | 17 | 34 | 15 | 26 | 30 | 41 | 291 |
| Number of accidents causing no injury to persons, | 80 | 56 | 35 | 59 | 63 | 42 | 39 | 46 | 48 | 51 | 65 | 76 | 660 |
| Percentage of all without injury to persons, | 65.0 | 58.0 | 47.0 | 63.0 | 64.0 | 52.0 | 59.0 | 49.0 | 64.0 | 56.0 | 56.9 | 56.3 | 57.8 |

| | | | | | | | | | | | | | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| Average number of accidents per day in each month in 1885-86, | 3.97 | 3.20 | 2.39 | 3.03 | 3.50 | 2.61 | 2.20 | 3.00 | 2.50 | 2.93 | 3.71 | 4.50 | - |
| Average number of persons killed per day in each month, | 1.16 | 0.63 | 1.00 | 1.29 | 0.75 | 1.58 | 0.77 | 0.74 | 1.10 | 0.74 | 1.00 | 1.40 | - |
| Average number of persons injured per day in each month, | 4.32 | 3.93 | 4.94 | 2.90 | 5.61 | 4.23 | 3.50 | 5.48 | 2.87 | 2.84 | 3.77 | 4.93 | - |
| Average number of casualties to persons per accident per month: | | | | | | | | | | | | | |
| Number of persons killed per accident, . | 0.293 | 0.198 | 0.419 | 0.426 | 0.214 | 0.605 | 0.348 | 0.244 | 0.440 | 0.253 | 0.270 | 0.311 | - |
| Number of persons injured per accident, . | 1.089 | 1.229 | 2.068 | 0.957 | 1.602 | 1.617 | 1.591 | 1.828 | 1.147 | 0.967 | 1.017 | 1.096 | - |
| Number of accidents in each month caused by defect of road or equipment, . | 47 | 25 | 30 | 22 | 38 | 33 | 23 | 41 | 27 | 31 | 43 | 46 | 406 |
| Number of accidents caused by negligence in operating, | 50 | 36 | 28 | 37 | 30 | 19 | 20 | 21 | 21 | 35 | 46 | 64 | 407 |

Tabular Statement of Train Accidents in the United States during Ten Years.

| | 1876-77. | 1877-78. | 1878-79. | 1879-80. | 1880-81. | 1881-82. | 1882-83. | 1883-84. | 1884-85. | 1885-86. | Total. |
|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------|
| Total number of train accidents, | 947 | 779 | 843 | 937 | 1,480 | 1,332 | 1,640 | 1,293 | 1,230 | 1,141 | 11,642 |
| Total number of persons killed, | 313 | 200 | 182 | 227 | 435 | 385 | 475 | 388 | 331 | 366 | 3,302 |
| Total number of persons injured, | 1,280 | 689 | 751 | 946 | 1,691 | 1,467 | 1,798 | 1,913 | 1,534 | 1,497 | 13,516 |
| Total number of accidents causing death to persons, | 132 | 106 | 100 | 121 | 225 | 224 | 258 | 228 | 211 | 190 | 1,798 |
| Total number of accidents causing injury, but not death, | 217 | 143 | 165 | 197 | 320 | 284 | 387 | 327 | 282 | 291 | 2,604 |
| Total number causing no injury to persons, | 598 | 530 | 578 | 622 | 935 | 824 | 1,004 | 738 | 735 | 660 | 7,299 |
| <hr/> | | | | | | | | | | | |
| Collisions, rear, | 177 | 138 | 172 | 239 | 363 | 388 | 403 | 316 | 313 | 302 | 2,831 |
| Collisions, head, | 98 | 79 | 79 | 111 | 161 | 140 | 191 | 146 | 125 | 108 | 1,238 |
| Collisions, crossing, | 18 | 7 | 12 | 17 | 30 | 26 | 38 | 27 | 31 | 34 | 240 |
| Collisions, passing, | - | - | - | - | - | - | 1 | 1 | - | - | 2 |
| Collisions, unexplained, | 4 | 1 | 1 | - | - | 2 | - | - | - | - | 8 |
| Derailments, | 600 | 520 | 532 | 532 | 855 | 740 | 921 | 736 | 695 | 629 | 6,760 |
| Other accidents, | 50 | 34 | 47 | 38 | 71 | 36 | 86 | 67 | 66 | 68 | 563 |
| Total accidents, | 947 | 779 | 843 | 937 | 1,480 | 1,332 | 1,640 | 1,293 | 1,230 | 1,141 | 11,642 |

[C.]

SPECIAL REPORTS ON ACCIDENTS.

DERAILMENT AND FATAL ACCIDENT AT ASSONET ON
THE OLD COLONY RAILROAD, FEB. 12, 1886.

During the great freshet, a train of eighty-two empty coal cars on its return from Brockton to Somerset was derailed while passing over an embankment in Assonet (Freetown), and sixty cars were thrown from the track. The fireman, Thomas Russell, was killed. No one else received any serious injury.

Cowen Brook passes under the embankment by a double culvert, which is of abundant capacity for the passage of the water even in the heaviest rains. But the removal of two planks from the Durfee Dam, 3 or 4 miles above this spot, carried away a reservoir on an abandoned privilege known as the Baker Place, and let down a flood which washed away the embankment. When the coal train went up to Brockton in the morning, the water was flowing freely through the culvert with abundant space to spare; and the water was not soiled. This state of things continued when the spot was visited by the section visitor, less than half an hour before the derailment. When the flood came, the turbid condition of the water showed that some accident had occurred on the stream. Every precaution had been taken; and the result was due to a casualty which the managers of this road could not prevent, and which they had no reason to expect. Nor was anything left undone by the men in charge of the train, who had no time to hold it back after they saw their danger.

By the Board,

THOMAS RUSSELL, *Chairman*.

FEB. 23, 1886.

COLLISION ON THE BOSTON & LOWELL RAILROAD AT
NORTH WOBURN JUNCTION, FEB. 12, 1886.

A passenger train with seven cars, leaving Boston for Lawrence, at 6.15 p. m., collided with the Montreal express with a baggage and two passenger cars, killing one passenger and injuring several passengers and train hands. The junction is guarded by a system of interlocking signals and switches.

1. The immediate cause of the collision was the neglect of the engineer of the Lawrence train to regard the distance signal, which was green, signifying "caution," and calling on the engineer to bring his train under control, so that it could be stopped before reaching the home signal. This was wholly disregarded, and the train was run as if "safety" had been indicated, until the home signal indicating "danger" was reached, when it was too late to stop the train. The engineer states that the distance signal was white, indicating "safety." But his statement is shown to be incorrect. (1.) It is directly contradicted by other witnesses, who testify that the green signal was given. (2.) It is contradicted by the statement of the engineer himself, who distinctly admitted, just after the accident, that the distance signal was green, and that his mistake was in not bringing his train under control. (3.) If the engineer's present statement was correct, the Montreal train could not have reached the point of collision. The signals and switches are so adjusted, that when "safety" is indicated at the southern distance signal, "caution" is indicated at the northern distance signal, and "danger" at the northern home signal, and the switch sends any inward train on the main line on to the down track of the Woburn branch, which here acts as a "throw-off point." Therefore, if the southern distance signal had been white, and if the Montreal engineer had persisted in running against his signal, he would have gone safely over the down track of the branch. The engineer, therefore, testified to something that is physically impossible. Neither by negligence nor by malice could the state of things be produced which he describes, and the route of the Montreal train is more conclusive testimony against him than that of the witnesses whose word conflicts with his.

2. Even with the negligence of the engineman in not observing or not heeding the warning signal, the collision would have been impossible, if the interlocking system at this junction had been furnished with a "throw-off point" or ground switch for trains on the Woburn branch. The railroad company has sought to avoid accidents by establishing at this junction a costly system of interlocking switches and signals. This is not compelled by law, nor is a "know-nothing

stop" required at this point in the absence of such a system; for this is not a crossing of one road by another, but a cross-over of one track with other tracks of the same road. The system as found here is perfect to this extent, that the signals cannot indicate safety to two opposing trains. Safety from collision is absolutely secured, if trainmen regard the signals. But, as this case shows, if the signals are not obeyed, a collision is possible, unless the system is supplemented by what are called "derailing points," "throw-off points" or "ground switches." When this device is used, the careless engineer, instead of colliding with the other train, finds his own train carried on to a side track, where no harm can happen. Sometimes this side track ends in a sand-bed. But however it is constructed, no collision between two trains can occur with such a system. Without this device, the system is imperfect and promises immunity from collision without securing it. There are in the State railroad junctions which were established before this device was known, and where the lay of the land makes such a system difficult or dangerous. But no difficulty exists at the point in question; and if it did exist, a change of the precise point of junction might well have been made to gain the means of obtaining security from collision. The Board recommends that at this, and at like junctions, prompt action be taken to avoid the possibility of collision by using ground switches; and we commend this safety device for adoption upon all railroads in similar cases.

3. The fireman, who distinctly saw the green light, seems to have been remiss in not calling the engineer's attention to the fact that the distance signal indicated "caution." It is doubtful whether the engineer, who had been employed in switching, and who was running over this route on his third trip, fairly comprehended the meaning of a green signal. This is the more probable, because green is regarded as the opposite of red, and is used on switch targets on this and on other roads to indicate safety. The position which the engineer now assumes in his defence prevents us from learning positively whether this was or was not the case. But no one can doubt the importance of thoroughly instructing the men in charge of a train as to the meaning of signals, and of catechising them so as to be sure that they understand them.

4. No blame attaches to those in charge of the Montreal express train. They obeyed the signal and did all that was possible to avoid the disaster.

By the Board,

THOMAS RUSSELL, *Chairman.*

MARCH 8, 1886.

DERAILMENT OF PASSENGER TRAIN ON THE STATE RAILROAD, APRIL 7, 1886.

The investigation has been protracted in order to obtain the testimony of witnesses, and the evidence afforded by excavation. In conducting it we have been aided by investigations made upon the spot and by the report of a very eminent civil engineer, who visited the scene of the disaster at our request, and who had the advantage of a former connection with the Troy & Greenfield Railroad.

Passenger train 35, leaving North Adams for Boston at 4.45 P. M., was made up as follows: Engine, tender, express and baggage car, postal and baggage car, Fitchburg smoking car, one Troy and Boston passenger coach, one Fitchburg passenger coach and one Wagner parlor car. When going up the grade, at a point midway between Bardwell's Ferry and West Deerfield, a little before 6 P. M., at moderate speed, on the outward or southern track, the outer rail and a portion of the track gave way, wrecking the locomotive and throwing the cars down the embankment, which is here over 100 feet high. Most of the trucks remained on the track. The cars, with the exception of the Troy and Boston coach, were destroyed by the shock or by fire, three of them being burned either by the breaking of their lamps or by the demolition of the stoves. Out of 48 persons on the train 47 were injured, of whom 11 were killed at once or have since died.

The road is owned and maintained by the State; and this portion of it is operated by the Fitchburg Railroad Company. A freight train, with 29 cars and an engine weighing 51 tons, ran over this part of the track a little before 4 o'clock. The State track-walker passed over the spot at 4.45 P. M., and removed some slight obstructions from the ditch. He saw nothing that conveyed any idea of danger. Other officials had inspected the road without observing any indications of trouble. Nor was there anything to warn the engineer of train 35 until he felt the track giving way beneath his locomotive. He at once reversed the engine to check the speed of his train.

The portion of the roadbed where the accident occurred is part of the original construction, a single track rebuilt about nineteen years since, and it stands partly on solid rock, made by blasting a ledge, and partly on the embankment made outside of this ledge by dumping earth and fragments of rock. The cliff above the track is about 60 feet high. The width of the roadbed is 31 feet, 9½ feet being outside of the outer rail. The horizontal distance of the top of the bank from the river is 120 feet, the vertical height being 101 feet,

and the distance measured on the slope 175 feet. About two years ago a second track was laid inside the original track, on a new road-bed 12 feet wide, made by blasting and cutting into the rock.

In general this Board, when investigating an accident, does not consider the question of legal liability. But when accidents occur on the State road it is our duty, under the contract between the State and the operating company, to apply the rules of law to the facts, and thus to decide the question between the parties to that contract as to which shall bear the loss. This question, however, does not arise until the accounts of the company are presented after the termination of the railroad year. It will then be decided upon the evidence now in possession of the Board, and such further testimony as may be hereafter obtained.

The pressing question now is to learn the cause of the disaster, so that a repetition of like accidents may be prevented or rendered less disastrous. The attention of the Board has been directed to several points.

1. It has been suggested that more frequent patrolling would do much to insure safety. But it appears that the practice on the State road conforms in this respect to the usage on the best railroads. At all events this accident would not have been averted by any frequency of patrolling that has ever been practised or suggested. A track-walker had visited the spot and given it special attention about an hour before the casualty occurred; and there is no reason to believe that his presence five minutes before the arrival of train 35 would have resulted in any good. It appears also, that, owing to the prevalence of wet weather, the whole body of section men and an extra force had been engaged for some time in watching all exposed points on the road, their special object being to look out for the sliding of earth or stones on to the track, and not for the sliding of the track itself.

2. The train was running at a moderate speed, and was not on a curve, but on a straight line, the tangent which includes the place where the accident occurred being 300 feet in length.

3. Attention has also been directed to the fact that some of the cars were destroyed by fire. It is true that no passenger was burned to death, and only two persons suffered at all from fire. But the burning of three cars emphasizes the danger from this source, which has already been too well known from other railroad disasters. The law in regard to illuminating oil was complied with, and is always obeyed on this road, and, as we believe, on all the roads in the State. The statute forbids the use of naphtha or any compound of naphtha, or of any oil that will ignite at less than 300° Fahrenheit. The heating apparatus in each car was provided with the approved safeguards against

fire. But this accident shows, what common sense also shows, that if fire is used at all in cars such a disaster as this must be attended with peril from its use. In a slight collision or derailment the ordinary safety devices are of great value; but when a car is hurled from the top of a rocky precipice, making five revolutions in its descent, as was the case here, these safeguards will fail. Railroad managers generally are not sufficiently acquainted with the use of steam for heating cars to warrant a recommendation of its adoption in this State. The present law assumes that fire will be used. On some roads in other States steam from the locomotive boiler has been used with success for heating cars. Our railroad men fear new dangers as well as inconvenience from the adoption of this device. The subject deserves careful attention; and it may be that improved devices will remove some of the objections that now exist to this method of warming cars.

4. The cause of the disaster was a slide of part of the embankment. And the cause of this slide was the concurrence of three faults in construction.

(1.) In 1866-68, when this portion of the road was reconstructed over the very imperfect roadbed of Messrs. Haupt & Co., a piece of crib-work was placed in the embankment, occupying a considerable space midway between the track and the river. This was made of round, rough timbers fastened together by wooden pins, "battered" against the slope of a steep ledge, and filled with broken rock. It probably occupied a ravine in the mountain-side, and was intended to retain the filling. This crib-work was afterward covered with earth and rock, so that its presence was unknown to the present managers of the road. The contractor had forgotten it, and denied that there was any such work on the road; but after the accident the projecting ends of timber revealed its existence, and excavation has shown its extent and character. The pins have rotted away and the timber has greatly decayed. Its appearance is that of wood that has long been enclosed in moist earth, and much of the time in earth saturated with water. The period when this structure was placed in the embankment was fixed by a witness who heard his father bargain with the contractor for the hemlock trees of which it was in part made, and who had often seen it and climbed over it. The exact period when it was first covered with earth and rock cannot be ascertained. But it was before the road came into the hands of the present manager; and he never had any reason to suspect that this mode of construction had been used.

(2.) When the railroad track was "renovated" in 1874-75, the plan called for an open culvert by which the water accumulating in the ditch on the northerly side of the track at this place would

be drained into the river. Twelve hundred feet of ditch now lie directly west of the place of the accident, and 90 feet lie directly against it. The proposed culvert would have secured thorough cross drainage at this very point. It was thought desirable by the engineers in charge of the work, but was abandoned as unnecessary, or, as it is supposed, because of "insufficient appropriations and the impatience of the people with the great and seemingly never-ending expenditures." In the absence of such a culvert the melting snow or rain and the water dripping from the cliff above the track constantly collected in the ditch, and instead of flowing through it, percolated through the embankment, probably finding its way between the sloping ledge and the rotting crib-work which rested on it until the time came for the slide. A heavy rain had fallen the day before—not enough to cause a washout or to flow over the face of the track, but enough to lubricate the slope on which the crib-work had once been placed. The flow of water was probably somewhat increased by cutting into the rock when the second track was laid. It is evident to the sight that water does now flow through the embankment at this place. It should be said in justice to the present State manager that the ditches on the road are remarkably good. As one proof of this, it happened at the last official inspection by this Board that three experts who accompanied the Commissioners expressed their admiration of the drainage, and one of them, referring to the ditches, volunteered the remark: "We seem to have got home to the Pennsylvania Railroad." Those who know that road, and who know the estimation in which it is held by its "people," will appreciate this compliment. But drainage which is sufficient to protect a well-built embankment will not serve for one that holds such a source of danger as was hidden at this spot.

(3.) When the second track was added to the road in 1884, much of the broken rock was dumped on the southern slope of the embankment, with the idea of widening and strengthening it, and to dispose of the material. Such of the rock as reached the foot would aid in sustaining the bank; but that which remained high and over the weak spot would by its weight become a source of danger, and coöperate with the water in producing the final disaster. The three causes together were needed to produce the sad result, and together they abundantly account for it. Once more, it should be remembered that what would have been proper on a well-made embankment only became dangerous upon one that contained a concealed defect. It is hardly necessary to say that the State manager is not only giving careful attention to this spot, but that, as soon as possible, every weak or suspected place upon the road will be examined and made secure.

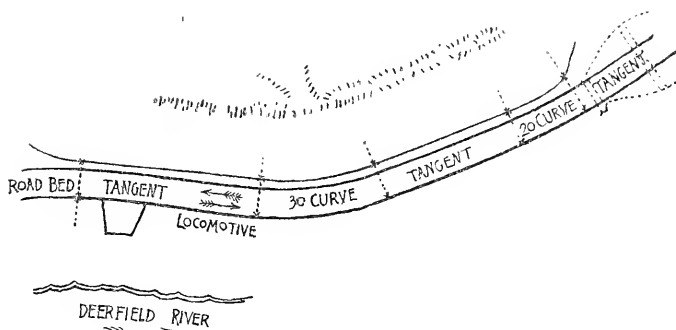
5. There is no evidence or suggestion of any fault of negligence or otherwise on the part of the Fitchburg Railroad Company, or of any one in its service. Those engaged in operating this train were men of experience, fidelity and skill. No blame could be attributed to any one of them. After the accident everything possible was done by the representatives of the railroad and the State to render service to the injured. H. P. Littlejohn, the engineer of the wrecked train, although wounded, bruised and fatally scalded, crawled up the steep bank, and walked half a mile toward Bardwell's, that he might flag any approaching train, and avert a new disaster. He died the following day. Such heroism as his deserves generous recognition. Charles Richardson, the fireman, showed similar devotion. After aiding his associates, he, with the blood streaming from his head and face, walked on the track to West Deerfield in order to warn approaching trains and to summon help. Conductor Foster, in spite of his wounds and burns, saved at least one life — that of a woman who was in danger of drowning in the river.

6. The death of Mr. Littlejohn resulted from his inhaling scalding steam, and calls attention to the necessity for precautions against this source of danger. Safety-valves have been devised, which prevent the escape of steam or hot water in cases of accident, and thus to some extent insure locomotive engineers and firemen, as well as passengers, against this peril. Casualties of this kind are of frequent occurrence. Mr. Forney, in a paper on attachments to boilers, read before the Master Mechanics' Association in 1881, refers to six accidents which happened within a year and a half, and in which 79 persons were killed and 83 injured by scalding. The Board earnestly recommends that all railroad managers consider the adoption of some device that will shield a deserving class of men from a terrible form of danger, and which in many accidents will protect passengers also against exposure to a most painful form of death.

By the Board,

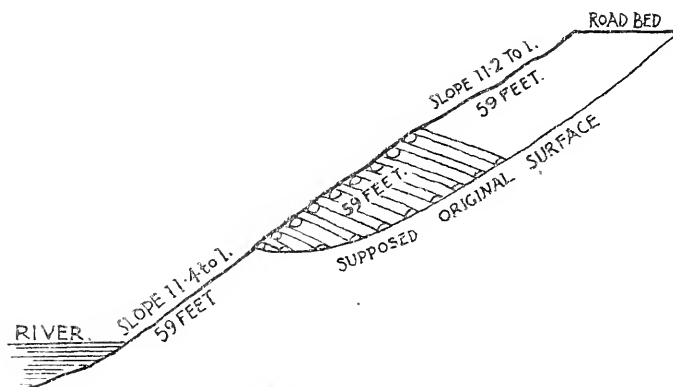
THOMAS RUSSELL, *Chairman.*

MAY 22, 1886.



SCENE OF THE ACCIDENT.

The above plan shows the roadbed and its curves, with the ditch on the north side, above which rises the solid rock 30 or 40 feet, forming almost a perpendicular wall. The accident occurred just to the left of where the word "locomotive" appears, and where the engine of the fated train was left on the bank.



THE CRIB-WORK SHOWN BY EXCAVATION.

COLLISION ON THE WORCESTER, NASHUA & ROCHESTER RAILROAD AT PEPPERELL, JUNE 19, 1886.

The rear collision of June 19, between a passenger train and a freight train at Pepperell on the Worcester, Nashua & Rochester Railroad, was owing to the neglect of rules and orders on the part of the engineer of the freight train. It was a case where, in his haste to reach a place of rest, the engineer "took the chances" of a collision with a regular train, rather than to remain on a siding in a safe place. In doing this he also grossly violated the rule restricting the speed of freight trains. Running as he did, the approaching passenger train should have been flagged. The conductor shared the fault of the engineer, as he did not remonstrate against the risk which was run.

These men had been at work from 10 A. M. on Friday till Saturday evening, when the collision occurred, without any opportunity for sleep on Friday night. Such continued work is injurious to the men, and therefore dangerous. Anxiety to reach a place where he could rest was given by the engineer as his excuse for what he did. The recklessness produced by bodily and mental fatigue has caused many accidents more serious than this. Even when men are desirous to do overwork for the sake of extra pay, they should be restrained from excessive labor, both for their own sake and from a regard to the safety of others.

There was no fault on the part of any one connected with the passenger train. Obedience to the rules and orders of the managers would have prevented the collision. Fortunately the injury occasioned was slight. But the managers of this and of all railroads should learn from this occurrence that it is wrong and hazardous to overwork the men whom they employ.

By the Board,

THOMAS RUSSELL, *Chairman.*

JUNE 24, 1886.

FATAL ACCIDENT AT A GRADE CROSSING OF THE BOSTON & MAINE RAILROAD IN WAKEFIELD, JULY 2, 1886.

On the night of July 2, John Measures and three other persons were instantly killed while driving over the crossing of Albion Street, by the Boston & Maine Railroad in Wakefield. Another traveller approaching the spot heard the train some time before its arrival,

checked the speed of his horse and gave repeated warning to Mr. Measures — who drove by him — calling his attention to the train and advising him to stop. The train was the Portland express due in Boston at 9.23 and at Wakefield at 9 P. M.

The crossing is guarded by a gate, but the gateman left his post at 8 P. M. on this occasion, as he always did. Besides the Portland express there are nine regular trains passing this point between 8 and 12 P. M., one of which (due at 10.04) does not stop at the station near the crossing. The bell was rung properly. It had been the practice to whistle when approaching Albion Street until after the passage of chapter 334 of the Acts of 1885, when upon the petition of the selectmen and other citizens of Wakefield whistling at this crossing was forbidden by the Board.

The views of the Commissioners in regard to that act are set forth in the annual report for 1885, pages 26–28, as follows: —

“Chapter 334 empowers the commission, after notice and hearing, to forbid or regulate the use of the locomotive whistle at any specified highway crossing. It was enacted on the petition of parties who urged that the injuries and loss of life resulting from the use of the whistle exceeded the benefit of such use. They spoke of accidents arising from the frightening of horses, and still more of the disturbance and loss of sleep which were caused by it, and which, in case of illness, were often attended with fatal results. The railroad companies did not oppose the passage of the bill, only asking that it should be so drawn as to protect them in their obedience to its provisions. Heretofore they have been peculiarly situated in regard to this matter. The law required the ringing of a bell or the sounding of a whistle; and in most cases the bell would be the appropriate warning. But if a crossing accident occurred, the question was always left to the jury, whether at this particular crossing, and in this special case, the whistle ought not to have been sounded; and juries were sure to find that it ought to have been used, and to return a verdict for the plaintiff. The companies, therefore, could not consult the comfort and health of the community without exposing themselves to heavy penalties. Under the new law, an order of this Board will shield the company acting in obedience to it. Four petitions have been acted on, and whistling has been forbidden at the several crossings covered by these petitions. The Board believes that this legislation is wise. They agree with their predecessors in holding that the value of the whistle as a danger signal is impaired by its constant use as a mere crossing signal; that such use inflicts a heavy penalty upon the innocent to protect the reckless and undeserving, and that at many crossings the whistle is simply a useless annoyance. It is not improbable that fatal accidents will occur at some of the crossings where whistling is now dispensed with. Indeed, it is certain that at some time they will occur, for such fatalities have happened from time to time when whistling was permitted; and its cessation will not relieve careless people from danger. But such accidents will not disprove the wisdom of the law. If the natural

horror arising from the occurrence of a fatal casualty should ever lead to a condemnation of the statute and a demand for its repeal, it should be remembered that the benefits of the law are constant, although they are not visible; that no law can always shield men from the results of their own recklessness, and that a highway-crossing accident is almost impossible under any state of law, if travellers will use ordinary care."

It is an illustration of these views that at this very crossing two accidents — one of them fatal — occurred while the practice of whistling was in full force; and that on two occasions travellers have driven through the closed gates. No one precaution will always shield travellers from the consequences of their own negligence, and no one can have imagined that the discontinuance of a precaution would operate as a safeguard where both parties were negligent. In this case the testimony shows negligence on the part of the driver, who was warned not to venture on the crossing. It also appears that it was the practice of the railroad managers to withdraw the gateman at 8 P. M., although several regular trains, one of them a full express, run over the road between 8 and 12 P. M. This is an unsafe practice, tending to endanger travellers, especially those who know the existence of a gate at the crossing. To such persons, the fact that the gate is not closed is an assurance that no train is due. The upright bar of the gate is a safety signal, and if it is a false signal, it is a source of danger.

A "night man," in addition to the station agent, was employed at the station, who might have tended the gate, and who does now tend it, but at this time it was not regarded as a part of his duty. The Board has heretofore expressed its views as to the danger resulting from the withdrawal of gatemen or flagmen during the time when trains are running over railroads. The Boston & Albany Railroad Company, which never sounds a whistle as a crossing signal at any point within the city limits, guards its important crossings for the whole twenty-four hours, and withdraws its flagmen and gatemen from none until midnight. The Boston & Providence also guards its suburban crossings at each end of the road during the whole period of twenty-four hours. This safe and prudent practice is strongly recommended to all railroad managers.

By the Board,

THOMAS RUSSELL, *Chairman.*

JULY 15, 1886.

DEATH OF MISS EMILY B. COX.

The death of Miss Emily B. Cox, near Oak Grove station, on the Boston & Maine Railroad, occurred in this way: Train 103 left Boston for Reading at 6.05 P.M. At a distance of about 600 feet from Oak Grove station, express train 106, bound for Boston, was seen to be approaching. Train 103 was therefore slowed, so as to prevent a meeting of the two trains at the station. After the express had passed, steam was put on (the grade being ascending), and speed was increased. Unfortunately, Miss Cox left the train without waiting for it to stop, or for the station to be announced, and was thrown under the wheels of the car in which she had been riding and was killed.

The result was solely due to her error in leaving the train before it had stopped, and before the station was announced. No fault appears in the rules of the company, nor any negligence in its operation. The Board has heretofore recommended the placing of gates on the cars, but such gating as we suggested would not have prevented this casualty. We referred to the use of gates as practised on the Boston & Albany road — gates which are closed on the side next to the opposite track, and which thus prevent passengers from leaving on the wrong side. The unfortunate victim, on this occasion, left on the right side but at the wrong time. We have had occasion to renew our recommendation as to the use of gates, but we are not prepared to advise that upon such trains as the one in question gates should be locked on both sides of the platform, to be opened at every station, with all the delay and annoyance that would arise from such a practice.

By the Board,

THOMAS RUSSELL, *Chairman.*

Nov. 22, 1886.

COLLISION ON THE BOSTON & ALBANY RAILROAD
AT PITTSFIELD, NOV. 20, 1886.

This collision was investigated, not because of its results, but because of what the result might have been, and because any such accident to an express passenger-train should be inquired into, although, by good fortune, no serious damage is done. Train 14, from Springfield to Albany, is due at Pittsfield at 1.18 P.M. When it arrived on Saturday with five passenger-cars, the engineer (at the

distance of ten or twelve car lengths from a switch leading to a side-track) saw that the switch was wrong. The train was running at the rate of twenty-five or thirty miles an hour, which was promptly reduced by reversing the engine and applying brakes. A locomotive, with a caboose car attached, stood on this track, and both engines were considerably damaged by the collision; no one was seriously hurt.

The switch-tender, shortly before train 14 came in sight, had let a train on to the side-track; and after closing the switch he walked, as is his practice, toward the approaching train and gave a signal meaning "all right." A distance-signal, 1,000 feet from the switch, had given the same notice, showing that the switch was closed; and this was observed by the section foreman. But after train 14 had passed this signal, and while the switch-tender was signalling for it to come on, Timothy Buckley, a boy of twelve, threw the switch open, and thus let the express train on to the side-track. The boy was there, as he had occasionally been before, to bring his dinner to a brother who is a brakeman on the road. He had never thrown a switch before, nor had he anything to do with the operation of the railroad. His story is that the switch-tender, Mr. Morrow, directed him to throw the switch, and explained how it was to be done; that Mr. Morrow then walked toward the train and made a motion with his hands, calling out something which he understood to be a direction that now was the time for throwing the switch.

This is flatly denied by Mr. Morrow, and is in itself incredible. It assumes that Mr. Morrow, without any motive, deliberately planned the wrecking of an express train filled with passengers, and proceeded to execute his plan in broad daylight and in the presence of witnesses. The boy evidently did not see the folly of the story which he told; but having, while Mr. Morrow's back was turned on him, done a reckless and mischievous act, he now composes an impossible story as a defence. He was probably wholly ignorant as to what he was doing, and may, in his ignorance, have supposed that it was the right thing to be done.

The accident would have been impossible if Mr. Morrow had done his duty by locking the switch. The rules require, as the rules of all railroads do, that in such a case the switch should be locked. "Whoever throws a switch off the main track must know that it is put back in proper position and locked." — [Rule 12.] These rules are given to every man employed by the company. Mr. Morrow had received a copy from the proper source, but had neglected to read it; and it had not occurred to him that it was unsafe to leave the switch unfastened. Another rule requires the careful reading of all the regulations, but Mr. Morrow had not read this rule.

The engineer acted with promptness and energy, saving his train from a great disaster.

The Board has nothing to add to this statement, except to suggest that this occurrence shows that it is necessary to give oral advice to employees that they read the rules placed in their hands.

By the Board,

THOMAS RUSSELL, *Chairman*.

Nov. 27, 1886.

DERAILMENT ON THE BOSTON & LOWELL RAILROAD
AT WINCHESTER, NOV. 26, 1886.

The derailment of an outward-bound passenger train at Winchester on the Boston & Lowell Railroad on November 26 was caused by striking the casting of a misplaced Tyler switch. It resulted in damage to rolling stock amounting to \$1,500. The engineer and fireman of the derailed train were slightly injured, but were able to testify before the Board. The switch, shortly before the arrival of the train, had been thrown for a train going from a siding upon the main track, and the switchman had forgotten to throw it back to the main track. The engineer acted with promptness as soon as he came in sight of the switch, and no blame attaches to him or to any of the train hands.

The only matter deserving of remark is the inadequacy of this switch and of many of the old switches on our railroads when tried by the increased weight of the new style of locomotives. The object of safety switches is to prevent just such accidents as this. And when this switch was first laid under authority and command of law, it was a proper one for the business then done on the road. But an increase amounting, according to the testimony, to ten tons for each engine, with an increase of speed also, demands an increase of strength in the safety device which seeks to guard against derailments by such accidents as this.

The Boston & Lowell Corporation has recognized the fact, and is supplying its whole main track with split switches. It was expected that the work would have been completed before this time, and notwithstanding various causes of delay, it will probably be done before the ground is frozen. Other companies are doing the same. The attention of all railroad managers is called to the necessity of providing safeguards against the danger arising from the constant increase in the size and weight of locomotives.

By the Board,

THOMAS RUSSELL, *Chairman*.

Nov. 30, 18

[D.]

PETITIONS FOR GRADE CROSSINGS.

SELECTMEN OF FALMOUTH, PETITIONERS FOR A
GRADE CROSSING OF THE OLD COLONY RAILROAD.

The selectmen of Falmouth ask for the third time our assent to a level crossing over the Old Colony Railroad track by a town way. And they propose, if it is given, to take action for separating the grades at two other crossings, so that the net result will be to lessen the number of these dangers. The railroad company makes a generous offer, viz., to build the bridges and abutments in order to aid in gaining this result. If it is accomplished there will be two safe ways by which travel can cross from one side of Falmouth to the other. And as much of it is pleasure travel, some of which is conducted by ladies, there is more reason than usual to expect that a safe choice will be made.

The often repeated views of the Board against grade crossings compel them to permit one, when by so doing they can secure the abolition of two more dangerous, and in the same town. With this expression of opinion, final order will be suspended to await action by the town.

By the Board,

THOMAS RUSSELL, *Chairman*.

FEB. 8, 1886.

On the 21st of July, it being shown that the County Commissioners of Barnstable County had adjudged that a separation of grades should be made at the two crossings referred to in the foregoing report, the Board gave its assent for the new grade crossing asked for.

SELECTMEN OF ATTLEBOROUGH, PETITIONERS FOR A
GRADE CROSSING OF THE ATTLEBOROUGH BRANCH
RAILROAD.

The selectmen of Attleborough have obtained from the County Commissioners a judgment that public necessity requires that Peck Street be constructed at a level with the tracks of the Attleborough Branch Railroad, and they ask the assent of this Board. Peck Street extends to each side of the railroad location. The proposed crossing is specially dangerous, because of a curve in the railroad. The objections of the Board to such crossings are well known, and were fully set forth when it was proposed to extend this same street over the main line of the Boston & Providence Railroad.

But here a grade crossing actually exists, and will exist in full force whether it is legalized or not. No other mode of crossing is practicable. The inhabitants of at least eight houses daily pass over this proposed crossing, and many of them do so under an admitted claim of right. It is acknowledged by the railroad company that at least fifteen heads of families have a right of way to and from their houses for themselves and their families, and for those who supply their wants. Moreover, the number who have the right is so great that no attempt is ever made to prevent any person from crossing, and, in fact, the way is very freely used, both by foot passengers and teams, — as freely as any part of any street. These rights of way were created by deed, and there was testimony, which, under a recent decision of the Supreme Court, would create such rights by prescription, if there were no deeds.

The evils attending a grade crossing, therefore, exist, and the railroad company admits that it cannot prevent them. They will be somewhat diminished by the new location, which will substitute a straight street for the crooked way now in use. The sole objection to the granting of level crossings is not the possible expense to railroad companies, but the danger to travellers on the highway and the railroad. As these dangers will not be increased, and as the high degree of convenience, which the law calls “necessity,” demands a level crossing, the Board gives its assent thereto.

THOMAS RUSSELL, *Chairman.*

JUNE 25, 1886.

SELECTMEN OF WINCHENDON *v.* CHESHIRE RAILROAD COMPANY, FITCHBURG RAILROAD COMPANY AND BOSTON & ALBANY RAILROAD COMPANY.

The complaint of the selectmen is that the crossing of Central Street in that town is improperly occupied by the freight trains of the above-named companies; and they ask an order which will relieve the crossing from this annoyance.

The case was heard at Winchendon, and a decision has been delayed until a plan of the premises could be prepared by an expert.

There is no doubt that the street is obstructed to a great and troublesome extent. But it is plain, although the obstruction can be somewhat reduced, it cannot be avoided while the location of these railroads remains as it now is. A simple order to the railroad companies to discontinue the use of this crossing "for making up or disconnecting freight trains," cars or engines, or "for the purpose of distributing freight or freight cars," would only make it impossible to conduct the freight business of the roads. There are two ways of removing the present trouble.

1. Separation of grades would, of course, prevent all obstruction of the street. But we have no proof that this is desired by the people; the expense would be enormous, and great injury would result to the property of abutters on the highway. The public, also, would be put to inconvenience. At all events, we do not feel called upon to recommend an application to the County Commissioners for this purpose.

2. The establishment of a union passenger station near the spot now occupied by the farther freight house of the Cheshire road, and of a union freight depot on or near the present location of the Fitchburg freight house, would relieve the existing difficulty and furnish improved facilities to the public.

We have no means of judging how this project would be received by the people of Winchendon. It can only be effected by legislation, which would apply not only to the three railroad companies named, but to the Monadnock road also. We can only recommend to the people of Winchendon to consider this question, and to ask for legislation, if, on the whole, they desire it.

In the mean time we advise the managers of all the railroads to exercise constant vigilance in reducing to the lowest amount the obstruction and annoyance caused by their use of this crossing. And we have reason to believe that they have not waited for this advice, but that they have given orders to this effect to all the men in their employ.

By the Board,

Nov 1, 1886

THOMAS RUSSELL *Chairman*.

[E.]

PASSENGER AND FREIGHT FACILITIES
AND RATES.BEL AIR MANUFACTURING COMPANY AND OTHERS *v.*
BOSTON & ALBANY RAILROAD COMPANY.

The petitioners ask the Board to recommend a reduction of coal rates from North Adams to Pittsfield from one dollar per gross ton to sixty-five cents. The respondents offer to fix the rate at ninety cents per gross ton for a car load. The question, at the request of the petitioners, and with the assent of the respondents, has been argued in writing. The coal to which the question relates comes from Clearfield County in Pennsylvania, and is carried to North Adams at very low rates, in consequence of keen competition. The purchasers at Pittsfield naturally desire to take advantage of this competition; and in order to do so they are entitled to reasonable rates from North Adams. But they would not claim specially low rates, or rates corresponding to the low ones at which the coal is carried to North Adams.

It is not claimed that the rate of ninety cents, or even the rate of a dollar, is excessive as compared with the general coal rates on the Boston & Albany Railroad. Nor can a claim for reduction be founded on the tariffs of other Massachusetts and New England railroads. This will appear from the table given below. And it will be noticed that the transportation in these cases is generally on the main line from a terminal point, in the direction of a great volume of traffic. As we have had occasion to say before, "Transportation from an important terminal point can be done at a lower rate and at a greater profit than business from one way station to another; and transportation on the main line from a chief terminus is generally done at a lower rate than on a branch road. The simple reason is that there is more business to be done, and therefore the road can afford to do it at more favorable rates." The Board has also referred

to the fact that the railroad company in many cases acts as stevedore, and so making an independent profit can afford to reduce its charge as a carrier. Making due allowance for these considerations the table fails to show that the rates in question are excessive.

| RAILROADS. | From | To | Miles. | Rate. |
|-------------------------|-----------------|---------------|--------|-------|
| Boston & Lowell, | Boston, | E. Billerica, | 19 | \$ 75 |
| | (Mystic Wharf). | | | |
| | " | Billerica, | 21 | 75 |
| Boston & Maine, | " | N. Billerica, | 22 | 75 |
| | Boston, | Ballardvale, | 21 | 85 |
| | " | Andover, | 23 | 85 |
| | " | Lawrence, | 26 | 85 |
| Boston & Providence, | " | Lowell, | 28 | 85 |
| | India Point, | E. Foxboro', | 20½ | *1 10 |
| | (Providence). | | | |
| | Boston, | E. Foxboro', | 21½ | *1 10 |
| Fitchburg, | Boston, | Concord, | 20 | 75 |
| | Worcester, | Hubbardston, | 20 | 1 00 |
| New York & New England, | Boston, | Walpole, | 19 | *1 00 |
| | " | Norfolk, | 23 | *1 20 |
| | Providence, | Coventry, | 18 | *1 00 |
| Old Colony, | Somerset, | Mansfield, | 20 | 75 |
| | " | Easton, | 20 | 1 00 |
| | Boston, | Brockton, | 20 | 80 |
| | " | Stoughton, | 19 | 90 |
| | " | Cohasset, | 22 | 1 00 |
| | Walpole, | Southboro', | 19 | 1 00 |
| | S. Framingham, | Carlisle, | 20 | 1 00 |

* Net ton.

Rates given by rival companies acting under ruinous competition are of no value as standards of comparison. The consumer has a right to the benefit of such competition while it exists, even if one of the companies has become reckless through bankruptcy, or has become bankrupt in its reckless contest. And the respondents have no right to add one cent to the "reasonable rates" secured by law, in order to shut the consumer out from this advantage, however circuitous the route may be by which the low charges from the mine are secured. But the consumer has no right to demand unreasonably low rates from the company that directly supplies him. He cannot demand that proper rates shall be cut down so as to be in proportion with rates which have been fixed on other roads under fierce competition, and which have helped to bankrupt one of those roads.

The petitioners evidently rely mainly upon the rate fixed by the Board under the peculiar provisions of chapter 338 of 1885, for coal transported over the Housatonic Railroad from Pittsfield to Great

Barrington, twenty-three miles. The petitioners, misled probably by an erroneous report, state this as sixty-five cents, but it was really fixed at seventy-five. It is also stated in the order of this Board that "said charges and rates are for cargo lots of not less than forty tons, and twenty per cent. may be added for car-load lots of less than forty tons" (Seventeenth Annual Report, p. 149), so that the rate for single car loads between the points named is ninety cents.

But if this rate were lower than it is it could not be taken as a fair standard of comparison for rates to be fixed by the directors of other companies. The rate from Bridgeport to Great Barrington and other points in the valley was, after a hearing, fixed by the railroad company at one dollar and a half, — a rate satisfactory to the consumers and to the Board. But the people desired the advantage of competition in the sale of different kinds of coal and at different points, and objected to having such rates as would give a monopoly to one place, with a possible overcharge for the coal itself. The rates of freight by other routes were fixed with some regard to the Bridgeport rate fixed from Bridgeport, — a low rate which the Board had not recommended. But the position of the Board in fixing rates for the Housatonic Railroad was wholly exceptional and anomalous. We have often had occasion to say, in deciding petitions like the present, that it is not enough to warrant our interposition, that we think it would be wise and expedient to reduce rates. It must be shown that they are so unreasonable and excessive as to warrant an appeal to the courts, or to the General Court, if our recommendation is disregarded. Up to that limit the directors are the proper parties to fix rates. The Board has more than once expressed the opinion that it would be wise in this manufacturing State, and especially in a county situated as Berkshire is, to carry coal for something like the simple cost of carrying it, trusting to the resulting increase of manufactures, of population and of general traffic for an indirect profit. But in this case, and in like cases, we do not feel at liberty to give a formal recommendation to that effect, to be followed in case of need by an appeal to the General Court. Nor did the Board in its "recommendation" to the Housatonic Railroad Company take any such ground.

But when, under the peculiar circumstances of the case, the Board was substituted by legislative power for the directors, we were at liberty, or rather we were bound to exercise a wider discretion as to rates than if we were dealing with a company in a normal condition. The rates fixed by the Board are such as we think it wise for all railroad companies to adopt. But it does not follow that it would be right to enforce them against all companies. In the present case we should be glad if the former arguments of the Board, or any other arguments, had persuaded the directors to make a further reduction

of the rates in question. But we cannot say that the rate of ninety cents is unreasonable, or so excessive as to call for a formal recommendation by the Board. No question has been raised in this case as to "cargo rates."

By the Board,

THOMAS RUSSELL, *Chairman.*

MARCH 2, 1886.

E. L. ALEXANDER AND OTHER RESIDENTS OF MALDEN
v. BOSTON & MAINE RAILROAD.

Some citizens of Malden make various complaints against the management of the Boston & Maine Railroad. Several witnesses were heard in support of these complaints, and an equal number in defence.

Malden Centre is five miles from Boston. There are eighty-six trains running daily on the two branches of the road, between the two cities. It is admitted that the trains are sufficient in number, that they are run at satisfactory hours and that Malden owes its remarkable growth, in part, to its excellent and almost excessive train-service. Numerous objections are made to the manner of operation.

1. It is said that trains frequently are run by the station. No one can imagine that this is done in accordance with the wish of the managers. Such a practice must be objectionable to them because of the cost, the loss of time and the awkwardness of the thing. It will happen sometimes, as long as trains are run by mere human beings. An occasional error of this kind, if noticed at all, should be reported at once to the general manager. If not reported promptly it can neither be proved nor disproved, nor explained. The only state of things which could make such mistakes the foundation of a formal complaint here is their habitual occurrence, — so frequently as to show that the train-service was generally poor, or, to use a common phrase, "demoralized." This is not alleged in regard to the Boston & Maine Railroad; it is disproved by many witnesses and by our own personal knowledge of its operation; and it is also disproved by the general record, showing a freedom from accident which can only be found on a well-managed road.

2. It is said that express trains are run, at high speed, by trains standing at a station to receive or discharge passengers. This is a dangerous practice. The Board has tried in vain to have it forbidden by law. The Legislature has preferred to leave the matter to the prudence and self-interest of each railroad company. No company claims that it is a safe mode of operating, and the Boston & Maine

has a rule forbidding it. This rule is, no doubt, sometimes violated on this as on every road. When such a violation is observed it will be a service to the managers and to the general public if it is promptly reported. This course was pursued by one of the witnesses, and after doing his duty in this respect he observed that, for some time, there was no repetition of the wrong. It is not good service either to the railroad managers or to the public to wait a long time and then to bring a general charge, without specifications of time and without possible identification of the parties. In such case the Board can only give a general recommendation to the company to enforce its rules which, for its own sake, it is already and always desirous of enforcing.

3. Complaint is made of noisy and disorderly conduct in the cars, annoying to passengers and not properly repressed by train-men. This is primarily the fault not of the company but of its customers, and of a portion of the community served by the road. But it is the duty of the managers to furnish reasonable protection to their passengers; and if they are especially liable to this annoyance on any particular part of the road, or at any special time, extra force should be employed for the purpose. The law upon this subject was formerly defective, and attempts to punish disorderly conduct failed in court. Probably some of the cases testified to date back to this time. The defect has been supplied by stringent legislation, and it is the duty of railroad managers to prosecute offenders. It is the duty also of well-disposed passengers to aid such prosecutions by their testimony and not to allow their sympathy to obstruct the course of justice. The Boston & Maine officials have tried to enforce the law; indeed, one complaint against them is that within three years sixty-four passengers have been ejected or arrested at Malden. In other words, they have done their duty. These passengers could not have been arrested at Boston, for they had done nothing to make themselves liable. The complaint is, in part, that they were not arrested before they had violated any law.

4. It is said that the 7.21 P.M. train for Boston, sometimes used as a theatre train, is frequently late; this is true and it is unavoidable. This is an accommodation train for passengers, stopping at a great number of stations, in order to afford facilities to the people between Georgetown and Malden. This train must be irregular; it cannot be run with the punctuality of an express train. But the people of Malden would not be aggrieved if this train made no stop at their station. They are accommodated by a 6.55 P.M. train, which is convenient for theatre-goers. They cannot demand a train which shall always enable them to reach the theatre without losing a few minutes and which shall never be late.

One special charge of irregularity was explained. A train due to leave Boston at 11.15 P.M. was twenty minutes late in starting. The reason was that an express train had been delayed in arriving, by an unavoidable accident. This train was obliged to coal before going out and the local train was held back until the express had left, instead of being sent in advance of the express. The manager deserves credit and not blame for his care for the lives of his suburban passengers.

5. Complaint is made of the style of cars and that old cars are used on this portion of the road. The public have a right to all the accommodations required by law, and to safe and comfortable conveyance. If cars are not clean, properly warmed and ventilated, that is a proper subject of complaint; but fresh paint and gilding and elegance of upholstery are matters not of right to the public but of detail for the managers. All railroad companies must have old cars. When they lose their original freshness no economical company uses them at once for fuel. So long as they are safe and comfortable, they are kept in service, — sometimes as spare cars for extra service, often for suburban service. It is hardly necessary to give the reasons why they are so used and why a larger number of old cars are placarded "Malden," rather than "Portland" or "Fabyan's." Safety and comfort are all that the public can demand, and we should go beyond our province if we should advise the directors as to the disposition of their newest and most elegant cars; or if we should try to fix the precise time for abandoning cars that have ceased to be beautiful and attractive.

6. Complaint is made of insufficient room for passengers. Part of the complaint is founded on the fact that passengers for Malden are apt to crowd the rear car and passengers from Malden crowd the front car, so that several persons are often standing without need. The statute as well as the common law requires "reasonable accommodations" for passengers. No one will doubt that as a general rule seats are included in this requirement. No one will claim that there may not be occasions when it would be unreasonable to expect seats for all passengers. It would be folly to keep fifty or a hundred cars standing idle for a year because they might be needed on some great holiday. On such occasions passengers expect some discomfort and generally bear it with good humor. So it may happen on any day or hour that an unusual throng of passengers may crowd a train, without fault on the part of any one; but when a train is repeatedly and habitually so crowded that any number of passengers are obliged to stand, it is fair ground for complaint. The operators of roads should provide seats for all passengers that they expect. When, as a rule, passengers are obliged to stand, the managers have failed of their

duty. They should furnish seats for all, although one car may start less than half filled. The comparison with street railways proves nothing, for this reason, among others, that street railways are limited in the number of their cars by the orders of municipal authorities and by the capacity of the streets. The Board recommends to all managers to take such action as will secure, habitually, seats for every passenger taking their cars upon any ordinary occasion. We learn, with pleasure, that thirty new cars have been ordered for the Boston & Maine Railroad.

7. Strong complaint was made as to the dangerous nature of certain level crossings. This is the most important subject which the petitioners have brought before us. The general views of the Board as to the danger of grade crossings are well known. We hesitate on a complaint of this kind to express an opinion as to any one crossing, on which we may have to act formally. This is not the way to deal with the subject. On this petition we could at most give a recommendation. By a petition to the County Commissioners, and in case of need by appeal to this Board, any level crossing may, in a proper case, be actually abolished. The city can ask for separation of grades in any case. Where the cost of separation is moderate, any twenty voters of the county can petition. If the citizens of Malden regard any crossing as specially dangerous, their course is to petition for its abolition. This hearing will have been valuable if it results in such action. We were glad to learn that the city officials and the railroad managers are considering a plan for abolishing some of the worst of these crossings.

Finally, we would recommend to the directors that they seriously consider the question of gating their cars, and also of protecting their tracks at Malden station by a division fence. Each of these measures would do much for the protection of passengers.

By the Board,

THOMAS RUSSELL, *Chairman.*

FEB. 9, 1886.

HENRY A. WHITNEY AND 105 OTHERS *v.* THE MILFORD
& WOONSOCKET RAILROAD COMPANY.

This was a complaint alleging excessive fares between Bellingham and Milford, and between Bellingham and Franklin, on the Milford & Woonsocket Railroad, which operates also the Milford, Franklin & Providence Railroad. The distance from Bellingham to Milford is about four miles; from Bellingham to Franklin, about five miles.

The fares are as follows : Between Bellingham and Milford, single ticket, 20 cents ; five trips, 75 cents ; 20 trips, \$3 ; one month, \$5.25 ; school children, one month, \$3. Between Bellingham and Franklin the several rates are the same.

The Commissioners decide as follows : It appears that during the last year the operating expenses of the company exceeded its earnings by \$11,000. The passenger receipts from Bellingham station amount to \$90 per month, and there is no freight traffic. Every railroad company is bound to furnish reasonable facilities to the public, and to furnish them at reasonable rates. But the question, what rates are reasonable, depends upon the circumstances of each case. It cannot be said that any rate per mile is fair for all railroads. It is true that services must sometimes be rendered for a community which taken by themselves are not remunerative, because the franchise is taken as a whole. But here the whole franchise is unremunerative. And the petitioners have no equitable claim to have the annual loss increased at which this company serves them and others. It is suggested, and it is probably true, that a decrease of fares would increase traffic. But it is by no means probable that it would so increase receipts as to make them equal the cost of operation ; and a reduction at this place would compel reduction elsewhere on the road. This seems to the Board to be a case where, owing to the slight amount of traffic, exceptional rates of fare may justly be enforced. In like cases the people have sometimes agreed in advance to pay extraordinary fares, or to guarantee the company against loss. Such an agreement would have been gladly made if it had been necessary to insure the building of the road. Even at the high rates now exacted, the community gain while the stockholders lose by the operation of the railroad ; and the Board does not feel called upon to make a recommendation which would add to that loss.

A complaint was made at the hearing, which was not embraced in the petition, viz., that passengers, including ladies, were obliged to ride in a smoking car. Upon inquiry it appeared that a "combination car," formerly used as a "smoker" and for express purposes, was employed on the road because there were not passengers enough to fill a longer car. Smoking is not now allowed in it ; nor is there any trace of its former use. Indeed, the Commissioners rode to Bellingham in this car without suspecting it had ever been used by smokers. It is not reasonable to object to this piece of economy, nor to require the use of an unnecessary car, simply to avoid the name of a smoking car, or to add dignity to the car service of the road.

By the Board,

THOMAS RUSSELL, *Chairman.*

JOHN S. BLAKIE AND OTHERS, CITIZENS OF HYDE PARK, *v.* NEW YORK & NEW ENGLAND RAILROAD COMPANY.

The petitioners complain that two express trains which have hitherto, for more than five years, made stops at Hyde Park, have now discontinued these stops; and they claim that this is a violation of sect. 156 of chap. 112, Public Statutes. The law is as follows:—

“A railroad corporation which has established and maintained throughout the year, for five consecutive years, a passenger station at a point upon its road, shall not abandon such station, nor substantially diminish the accommodations furnished by the stopping of trains thereat, as compared with that furnished at other stations on the same road,” etc.

The fact is admitted, and it is not denied, that these were convenient and favorite trains. One left Hyde Park for Boston at 9.18 A. M.; the other left Boston at 3.30 P. M. In place of the last-named train, the time of a former train has been changed so that it leaves Boston five minutes after the express train, viz., at 3.35, reaching Hyde Park at 4.02 P. M. The trains now running to and from Hyde Park are as follows:—

Outward trains at 6, 7, 8, 9.30, 11 A. M.; 12.15, 1, 1.35, 2.30, 3.35, 4.30, 5.15, 5.35, 5.45, 6, 6.10, 6.35, 7.30, 9.15, 10, 11.15 P. M. Inward trains at 6.13, 6.48, 7.13, 7.45, 7.50, 8.08, 8.23, 8.53, 11.03, 11.48, 1.03, 1.43, 2.18, 3.33, 4.48, 5.18, 6.33, 7.08, 8.19, 9.19, 10.23. Of these the following-named trains are express: 7.45 A. M., 8.23 A. M. and 1.43 P. M. to Boston; 5.35 P. M. and 6 P. M. from Boston.

The reason for discontinuing the stopping of the outward train was the need of more time to insure close connections at Blackstone and at other important junction points. As a rule, such connections were made, but the failures were frequent and annoying to many passengers. This was also a mail train. The reason for dispensing with a stop at Hyde Park, rather than at some other point beyond this station, was the opinion that this station, although the most important one between the termini of the road, could better afford to lose one of its 42 trains than the other stations could afford to lose one of their few trains.

The reason for discontinuing the stop of the 9.18 A. M. train was the need of shortening the time for a through train coming from Wilimantic, a point 86 miles distant, and bringing through passengers from more distant points. These are good railroad reasons. The

object to be gained in both cases was not a saving or a profit to the railroad company, but a reasonable accommodation to the travelling public. The real question is not between the people of Hyde Park and the managers of this railroad, but between different portions of the public. One portion of a community must sometimes submit to inconvenience or loss of facilities in order that the others may have reasonable accommodation. It was once stated to the Board by a witness that every train should be express, and also that all trains should stop at every station on the road. A like demand is often made, not by one person, but by different sets of persons. In practice, it is not easy to regulate the respective rights of people at different stations. It seems to us that here the managers have endeavored to act fairly, and that they have done no injustice. In regard to the afternoon train, especially, there would have been grave cause for complaint if a stop had been persisted in which caused frequent failure to make important connections.

The claim for the petitioners is founded on a rigid, and, as we think, a mistaken construction of the law. It is said that the Hyde Park stops are reduced by two; and that the stops at other stations are not reduced. Therefore, the accommodation is diminished, "as compared with that furnished at other stations;" and, as these were favorite trains, the diminution is substantial. This is supposed to be almost a mathematical demonstration of violated law. We do not so understand the statute. It is not said that the amount of accommodation at one station shall not be reduced without a corresponding reduction at all other stations. The main object of the Act of 1865 (now sect. 156 of chap. 112) was to prevent the abandonment of stations to the unfair injury of persons who had made investments and arrangements in faith of their continuance. To prevent evasion of this prohibition, and to prevent the like evil of a great diminution of service, the clause as to substantial diminution was added. And to avoid too severe a restriction on the authority of managers, this was qualified by the reference to other stations. Without this last clause, a general reduction of passenger business could not be followed by a general reduction of passenger trains. The Board has no reason to believe that the Legislature intended by an iron rule to direct that every train which had been run for five years should be run forever, even if by other trains necessarily placed on the road such running had become needless or dangerous, nor that every stop which had been made for that period should be made forever, without regard to the needs or rights of travellers from other places. The words may be construed as forbidding such substantial diminution of accommodation at the station as will reduce it below that generally furnished

at other stations. Without positively accepting this interpretation of the clause, it is sufficient to say that it does not require that the amount of accommodation furnished at each station shall always bear the same ratio to every other, or that the facilities at one station may not for good reasons be so reduced that they shall be less than those of another station. Any other view of the statute would often result in great injustice. A village which had grown to be a city could not have its just demands for railroad facilities met without infringing on the statute rights of some place that had remained a village. The additional trains absolutely required for the city might compel the displacement of a train in the smaller place. The law cannot be intended to forbid this.

We give more force to the word “substantially” than has been given to it by the petitioners. As we have said before, “The word ‘substantially’ has not a definite meaning. It is a relative term, and, in considering whether the accommodations at a station are substantially diminished, the business of the whole road and the objects sought in operating it are to be considered. We are also to consider how many persons are incommoded by a change, and how much they are incommoded, and we are not wholly to forget the accommodations furnished by the change to other travellers and to the business community by the carrying of letters.”

To operate a railroad by statute is difficult. It would become more difficult if an unbending rule required that a facility once furnished should always be continued, without regard to circumstances, or that, if withdrawn from one station, it should, therefore, be withdrawn from all.

In considering the question whether this case shows a violation of law, we take into view all the facts, and among them the important fact that Hyde Park still has a very great number of trains with a fair number of express trains. Still more is this fact important as bearing upon the question whether this petition could be sustained as a request for a recommendation to give reasonable facilities. And in that view the accommodation furnished by the Boston & Providence Railroad to a portion of this large and thriving town is to be considered. The town is growing rapidly. But the Boston & Providence Railroad runs 43 trains daily, so that this town of 9,000 inhabitants has 85 trains daily, of which nine are express trains. We cannot say that the railroad managers have failed to give reasonable accommodation; and the Board declines to take any action on this petition. So far as this declaration is founded on our view of the law, we are glad that our views can be revised by a direct application to the Supreme Court.

If at any time, by a new arrangement with connecting roads, the managers of this road can be enabled to make the desired stops or either of them, without interfering with the fair rights of passengers, we do not doubt that they will be glad to give the desired accommodation to a place which furnishes them so many customers.

By the Board,

THOMAS RUSSELL, *Chairman.*

AUG. 8, 1886.

SELECTMEN OF HANOVER *v.* HANOVER BRANCH RAILROAD COMPANY.

A number of the inhabitants (represented officially by the selectmen of Hanover) ask that the train now leaving Rockland for North Abington at 8.15 A. M., and connecting with the fast train of the Old Colony Railroad for Boston, may leave Hanover at 8 A. M., or thereabouts, so as to furnish accommodations for the stations south of Rockland. This could be done without any additional engine, car or train hand, by using an engine which now stands idle for two hours. It is asked for as a convenience, and if it is a reasonable convenience, it is not necessary to prove that it will increase the profits of the company. But all railroad experience shows that increased accommodation does increase travel; and the history of the fast train, with which this is to connect, illustrates this fact.

The railroad is doing a profitable business, and a fair portion of this business is furnished by Hanover Station. The convenience asked is a great one; the cost of granting it will be slight and will soon be paid by increased travel. Whether so paid or not, it is a case where a proper regard for public needs calls for action by the directors. It was, indeed, suggested that a noon train was greatly needed, and that the granting of this petition might interfere with that. But the Board cannot decline to recommend a desirable train, which is petitioned for, because such action may interfere with a train which is not petitioned for. And the Board adjudges that the petition in this case is well founded, and recommends that the train desired shall promptly be put in operation.

For the Board,

THOMAS RUSSELL, *Chairman.*

SEPT. 6, 1886.

SELECTMEN OF AMHERST *v.* NEW LONDON NORTHERN RAILROAD COMPANY.

The selectmen, acting under a vote of the town, ask a recommendation for additional facilities at South Amherst. The people desire a better station; the stopping of all passenger trains when passengers desire to be taken or left at this place; the furnishing of freight facilities; the sale of tickets for and at the station, and the placing of South Amherst on the time-table. The road is operated by the Central Vermont Railroad Company.

South Amherst is a pleasant and thriving village of 500 inhabitants, with a church, post-office and country store. It is about three miles from Amherst and about three-quarters of a mile from South Amherst station. When the Amherst & Belchertown Railroad was built (the franchises and duties of which have passed to the New London Northern Railroad Company), the town voted (1) to give the land taken from the Town Farm by the road without compensation, (2) to exempt the company from fencing within the farm limits, (3) to grant the use of half an acre of land for a depot. The company by its acts accepted this offer and built a station, which was used for many years. It was then removed, but was restored upon the suggestion of the Railroad Commissioners that under section 156, chapter 112, Public Statutes, the right to a station had become vested.

The general rule of law insures for the people on a railroad reasonable facilities for passenger and freight traffic, whether the business at a particular point is or is not remunerative. The furnishing of such facilities, even at a loss, is part of the price paid for a franchise. And this applies especially to railroads like this, whose termini are in other States, and whose managers are likely to be interested in through traffic to the neglect of local interests. In this case the claim of the people is strengthened by the grant of the town. Such a grant, when accepted, is an executed contract, and the corporation accepting a grant binds itself to fulfil the promise implied by such acceptance. The railroad managers in this case contend that the receipts at South Amherst are so insignificant as to show that the demand for any increase of facilities is unreasonable. The amount is indeed ludicrously small, but the disuse of this station is explained by the fact that everything is done to discourage its use and to repel traffic. Especially is it to be noted that South Amherst is not acknowledged as a station in any advertisement or time-table. Whether any train will stop there is a question to be settled by inquiry, with probably different and doubtful answers. To illustrate this, the Commissioners were unable to learn, without special corre-

spondence with headquarters, whether the train which they desired to take would or would not stop at this point. And, in fact, they were obliged to arrange for a stop at Amherst, and for reaching South Amherst by private conveyance. It is plain that a traveller would take a ticket to Amherst, of which he was sure, rather than to South Amherst, of which he was not sure. The grievance is not only that all trains do not stop at South Amherst, but that there is no notice given as to the trains which will stop there. And this is not only a substantial grievance, but an answer to the argument that business does not warrant an increase of facilities. For many years no attempt has been made to meet the just demands and supply the reasonable wants of this community. And no argument can be founded on the absence of traffic when traffic has been persistently discouraged.

The petitioners especially desire that the "mail trains," so called, shall stop. These are through trains as well as fast trains, and it is desirable that passengers coming from or going to distant points should have a chance to use them, if their occasional stopping for one or two passengers would not interfere with the convenience of a larger number. If, indeed, it were shown that, by using this as a flag station for all trains, there would be danger of occasionally breaking mail connections for a large number of passengers, then a case would be shown where the interests of the few should yield to the rights of the many, and a stop should be refused, not for the sake of the railroad company, but for the sake of the public. But this was not shown; and the corporation, having all the facts in its possession, did not attempt to prove that the short time required for an occasional stop could not be easily made up.

There are said to be (for the testimony was slight) 17 flag or signal stations on the road. Stops of the "mail trains" are made, as it is believed, at stations less important than South Amherst. And upon the testimony as it was left, there was not sufficient reason for refusing a stop when desired at this station. And it will be borne in mind, that while trains are not stopped, and while the trains which will stop are not specified, passengers dare not depend upon the stopping of any train. By stopping all, the company will relieve the community from this trouble.

As to the other cause of complaint, the Board makes no formal recommendation. It is our belief that the erection of a more commodious station would finally result in increased traffic, and in profit to the company; but this is a commercial question, not a question of right. We cannot say that the business warrants the employment of a station agent to sell tickets, although tickets to and from South Amherst should be sold at proper rates at the Amherst station. Nor does it seem that the freight business at South Amherst would war-

rant us in recommending provision for it. But for the reasons given above, the Board adjudges that the complaint is well founded, so far as it refers to the omission of the station from all time-tables and advertisements, and the not stopping of trains thereat, and it recommends that every train be stopped at this station when a passenger desires to take or leave it, and that the name of the station (as a flag station) be set forth in all time-tables.

By the Board,

THOMAS RUSSELL, *Chairman.*

SEPT. 8, 1886.

SELECTMEN OF WESTBOROUGH *v.* BOSTON & ALBANY RAILROAD COMPANY.

The petitioners ask a recommendation that by the issue of package tickets or otherwise the fares for persons daily travelling between Westborough and Southville may be materially reduced. About 100 such travellers go from Westborough to Southville to work in a shoe factory, owing to the destruction by fire of a factory in Westborough. Somewhat less than 40 workmen go daily from Southville to Westborough.

The distance is four miles. The amount now paid is \$10.50 for three months. The charge for a single fare is nine cents, and it is not objected to. The price of season tickets is fixed by a sliding scale, the rate per mile being much lower for a long ride than for a short one. The 1,000-mile ticket at the uniform rate of two cents per mile is also much used on this road.

The desire of the people for a reduction is natural, especially in those who on account of their youth receive low wages, so that the fare amounts to a large proportion of their receipts. But to obtain a recommendation it must be shown either that the rate is in itself unreasonably high, or that there is something in this case taking it out of the general rule. Neither in itself nor by comparison with rates on other roads does the price for season tickets seem to be unreasonably high. There is good reason for adopting a higher rate per mile for short distances than for long distances, and this is the general practice on other roads. Indeed, it was admitted to be correct, but it was claimed that the difference made was excessive. It was urged that the average rate for three months' season tickets on the Boston & Albany Road is 64-100 of a cent per mile (for 1885, 67-100), while for this section of the road it is 1 68-100 cents. But to pro-

duce this low average it is necessary to reckon on the rate for long distances where season tickets practically are never used, and for others where very few are used. Under a settled rule, season tickets are offered for routes where no one thinks of using them. It is evident that the petitioners were (very naturally) misled by an item in the annual report of the Boston and Albany Railroad Company, "Average rate of fare per mile for season ticket passengers." But this does not refer, as some other items do, to the average rate of fare received from all passengers. The existence of a large number of nominal rates, which from the nature of the case can never be availed of, does not affect the propriety of actual rates fixed for real travel.

The rate not being unreasonable in itself, the next question is whether there is any reason for taking this section of four miles out of the general rule. In other words, if the rate for this section ought to be reduced, why should it not be on any other like section on this railroad, and on all others maintaining like rates? No such reason has been shown. This case differs entirely from that of a large suburban population, doing business in Boston, and living with their families in the country. Besides the railroad reasons for low rates for suburban travel, this system is in strict accordance with the policy of the State, which has not only permitted, but enjoined, what are popularly called "workingmen's trains," although their benefits are confined to no class.

We do not find that any such system exists in regard to centres of population and business smaller than the metropolis. And the principle on which such a system is favored by the State certainly would not apply to residents of Westborough who work in a smaller place, for whom chiefly this petition is brought before us. The Board does not feel justified in making any recommendation.

By the Board,

THOMAS RUSSELL, *Chairman.*

Oct. 11, 1886.

[F.]

PETITIONS FOR NEW STATIONS AND
RELOCATION OF STATIONS.

APPLICATION FOR A NEW STATION AT PIERCE
STREET ON OLD COLONY RAILROAD.

A. S. Covell and other citizens of Fall River request the Board to recommend to the Old Colony Railroad Company the erection of a new station-house at or near Pierce Street. A view and hearing showed what the Board already knew from observation,—that the Bowenville Station, which was sufficient for the wants of the suburbs of a growing town, has become altogether inadequate for the needs of a central point in a great and busy city. It appeared that two-thirds of the railroad business of Fall River is done at this station, and it is said to be the most important one out of Boston. Its importance is increased by the growth of the city northward, and by the fact that this growth includes a large proportion of persons likely to use the railroad. Not only is the station too small for comfort and convenience, but there are disadvantages in its situation and approaches.

The president and a resident director of the company concurred with the views of the petitioners, and stated that the matter had been fully considered by their Board. They recognize the fact that the station, although twice enlarged, is far too small for the needs of the people, and they desire to build a station-house like the one in process of erection at New Bedford, 150 feet long, 45 feet broad, and to be finished in a tasteful manner. The company owns a lot of land on Pierce Street, and has obtained the offer of an adjoining estate, so that there will be ample room for the building, with safe and convenient approaches, at this place.

The only reason for not constructing this station is the claim that Pierce Street, which runs east and west up to the railroad location, does legally extend across the location, and will, in fact, be so con-

structed and used. This would create a grade crossing of the most dangerous kind, adjoining a busy station, extending "across its mouth," and made more dangerous by the large amount of switching required at this point by the needs of traffic.

The legal position of the extension of Pierce Street is as follows: It was laid out with a level crossing over the railroad in 1873-74, by the mayor and aldermen of Fall River, with the assent of the County Commissioners, who then had authority to order such crossings without the concurrence of this Board. It has never been constructed across the railroad. Certain irregularities are alleged to have vitiated the proceedings, but the period of six years fixed by statute (chap. 186, sect. 11), for setting them aside by *certiorari*, has long since expired. The city holds that the extension exists as a matter of law, and that it cannot be discontinued without municipal action and the payment of damages. In fact, a proceeding by way of information is now pending in the Supreme Court, designed to ascertain and enforce the rights of the public to use this street.

Whether the legal question can be decided in this way, or how it will finally be decided, we cannot tell. Nor have we any jurisdiction as to this alleged grade crossing, if it shall prove to have been established before 1876. But when we are asked to advise the erection of a large station with its entrance upon such a crossing, it is our right and our duty to refuse a recommendation. Indeed, if the Old Colony company were about to place a station there, we should probably feel bound to remonstrate against the creation of such a peril to the lives of the community. After dealing with the crossing of the Boston & Albany Railroad over Kneeland Street in Boston, and after hearing complaints as to like crossings in Worcester and Springfield, we could not see such an error committed with indifference. In this case the evil would be aggravated by the fact that if the station were once placed on the crossing, there would be no remedy. The lay of the land forbids a separation of grades; and the "dangerous nuisance," if created, would never be abated. In order to recommend the erection of a station at this point, we must be satisfied that Pierce Street is not legally laid out across the railroad, and will not, in fact, be so extended. This we can by no means assume.

But the spot in question is the only available place for a new station. Not only is it the best in every way, but there is no assurance that any other fit place can be had. The site of the present station is by universal consent too small; and, without considering other objections, there is no reason to believe that the company can obtain the land requisite for its enlargement. To do this it would be necessary to take real estate now occupied by the street-railway company; and this would seem to be a harsh application of the right of eminent

domain. It cannot be assumed that an application for this land would be granted.

Finally, it is unnecessary to recommend to the directors of the company to erect a commodious station as soon as they can do so with safety to the community; for they seem to desire to do this as much as the public desire to have it done. And while we regret the inconvenience which the people of this thriving city are now suffering, we cannot advise the placing of such a station at a point where a level crossing is threatened, endangering the public who are invited to use the station, and enduring for all time.

By the Board,

THOMAS RUSSELL, *Chairman.*

JAN. 13, 1886.

PETITION FOR RELOCATION OF CYPRESS STREET STATION ON BOSTON AND ALBANY RAILROAD.

The Boston & Albany Railroad Company ask the assent of this Board to a relocation of Cypress Street station on the Brookline Branch. The company took no part in the hearing, signing the petition because that is the only way of bringing the question before the Board, but not joining in the discussion, which widely divides the people of the town. The selectmen have decided in favor of relocation at a point 875 feet west of the present site.

The chief object of the petitioners appeared to be to encourage the growth of a sparsely inhabited part of Brookline, and thus add to the valuation of the town. It seems to us that many of the witnesses, public spirited, fair-minded and intelligent as they are, overestimated the weight to which this argument is entitled on a petition for relocating a station. One witness stated as a reason for relocation that the land about the station was well filled with houses, and that it should therefore be removed to vacant land. This is not the policy of the State. Nor is this given as a fair specimen of the petitioners' views. But the statement illustrates the meaning of this movement, and shows that there is a tendency to forget the rights of those who have built near a station because of its existence.

This is not a simple railroad problem as to the spot where the station should have been placed, or what spot would best suit railroad interests or town interests now. Questions of good faith and of acquired rights are to be considered. If it could be demonstrated that property near the present station would be depreciated \$100,000, and

that property elsewhere would be increased in value by \$300,000, it would not follow as a matter of course that relocation should be granted. Even the gain of the greater number must sometimes yield to the rights of the few. The equitable rights, even if they are not strictly vested rights, of the minority must in some cases prevail over the desires and interests of the majority. Those who invest their money near a station acquire in time legal rights in its continuance, and a moral right that it shall not be relocated at a distant point without pressing need. The same reasons that forbid relocation without the assent of this Board require that the Board should refuse it unless a strong case is proved. We cannot take a thousand dollars from one man simply for the purpose of giving three thousand dollars, or five thousand, to another, nor lengthen his necessary walk solely to shorten that of another.

This is not a station that has failed to attract population. It has drawn about it a little community who would be subjected to inconvenience and loss by the proposed change. They would suffer more, because very few of them own horses or carriages. They would have more right to complain, if the change were made, from the fact that this station has been built and maintained in obedience to a special law. We have held with some hesitation that this is not absolutely a legal objection to relocation. But it strengthens the case of the remonstrants that the statutes give assurance that the station will be continued, and that when a train was withdrawn it was promptly restored as the result of official action.

The Brookline petitioners in aid seem to us to have mistaken their case and their remedy. They have, perhaps, shown the need of an additional station; and when the managers of the Boston & Albany are asked for one, they will be very likely to grant it, especially when their project of a circuit line is carried out. The Brookline petitioners have certainly mistaken their remedy if they suppose that a case for relocation can be made out by proof that the present station is filthy and unwholesome, or that it is locked up and untended during a great part of the time. A petition cannot be sustained by testimony that the petitioning corporation neglects its duty to the public. The evidence on these points may help to show why the station is not used more freely, and it certainly explains the motives of many of the petitioners. But the remedy for the evils complained of is not to deprive this neighborhood of its present facilities. The proper course would have been to apply to the railroad officials, and, in case of need, to this Board. Now that the matter has been brought to the attention of the managers, they probably will not wait for suggestions from the Board, or for petitions from the people, but will at once attend to it of their own motion. This company is not in the habit of neglecting

its stations; and many were led to ask for the change, in hope of an elegant structure like those recently placed elsewhere on the Boston & Albany road.

The strongest argument for the petition is the need of moving from the present spot when a bridge shall have been built over the railroad, and the difficulty of finding a fit place without going to the proposed location. But the inconvenience attending the reconstruction of this station does not warrant its proposed removal, in the face of a remonstrance made by the great body of those who use it, and who will have to bear a full share of the expected inconvenience.

The Board declines to assent to the proposed relocation.

By the Board,

THOMAS RUSSELL, *Chairman.*

FEB. 5, 1886.

SELECTMEN OF WHATELY, PETITIONERS FOR A STATION ON THE NEW HAVEN & NORTHAMPTON RAILROAD.

The selectmen and the people of Whately ask that the Board recommend the company to establish a passenger station and freight depot on their railroad in the town of Whately. At present the road has no such station, and trains run through the whole length of the town without stopping, making no stop for a space in this and in neighboring towns of about eleven miles. The town has a population of about 1,000; it is devoted to agriculture, and exports a large amount of apples, tobacco and other products of the soil. The Connecticut River Railroad Company has a station in the easterly part of the town at a point not more than sixty rods from the road of the New Haven & Northampton Company.

The chief object of the petitioners in asking for facilities from the New Haven & Northampton Company is to avail themselves of the connections made by that road, both northerly and southerly, which are not afforded by the Connecticut River Railroad. A choice of markets and a choice of routes would thus be afforded. Produce, including early vegetables, could be conveyed directly by one railroad that will not bear the cost and delay of transmission over two roads, which is now necessary in order to reach a market. The same thing is true of some articles needed in Whately. They could be brought directly from the place of production. But the necessity of transshipment now forbids their importation or makes it costly. It would

often be an advantage, also, to use one route in going and another in returning, taking advantage of the different hours on the two roads.

These claims of the public are not met by the fact that the Connecticut River road is capable of doing an amount of business at Whately exceeding all that is now done there. It cannot do the business which Whately desires, because it does not run to the points to which the "Canal road" runs. There is new business which the "Canal road" can do, and which the "River road" cannot do. Moreover, this is not a question as to the exigency for constructing a new railroad, but as to the propriety of allowing to the public the use of a railroad already constructed. Even if it were proved that the road ought never to have been extended, it would not follow that the extension ought not to be put to every use of which it is capable.

It is not claimed that the business of this station would render it profitable at once, although it is hoped that traffic would develop in time so as to pay the road. But it is too late to argue that this is of itself an unanswerable objection to the establishment of a station. The reasonable accommodation of the people on the route is part of the price to be paid for the franchise of a railroad. Proof that the business is unprofitable does not relieve a corporation from paying for the land taken. Neither does it remove the burden of meeting the equitable claim for reasonable service.

The probable amount of business should, indeed, have due weight in considering what is reasonable service. But all railroad managers recognize the fact that stations must be maintained and stops must be made, which, of themselves, do not pay expenses.

The Supreme Court of this State has said: —

"If the directors of a railroad were to find it for the interest of the stockholders to refuse to carry any freight or passengers except such as they might take at one end of the road and carry entirely through to the other end, and were to refuse to establish any way-stations or do any way business for that reason, though the road passed for a long distance through a populous part of the State, this would be a case manifestly requiring and authorizing legislative interference. . . . And on the same ground, if they refuse to provide reasonable accommodation for the people of any smaller locality, the Legislature may reasonably alter and modify the discretionary power which the charter confers upon the directors, so as to make the duty to provide the accommodation absolute. *Commonwealth v. Eastern Railroad Company*, 103 Massachusetts, 254."

The case before us well illustrates the views of the court. This road was not built at the suggestion of the Whately people, or of their neighbors. It was designed to secure traffic passing through the tunnel and business going to and from Turner's Falls. But of neces-

sity the road passed through Whately, taking land without the consent of its owners, cutting up their farms without regard to their wishes or interest, and crossing highways in a manner inconvenient to travellers. In obtaining these rights under the general law the railroad managers assumed duties which they have not performed. The people now demand a performance of these duties, and, so far as it is reasonable, the demand should be complied with.

The claim is strengthened by the fact that when land damages were settled, the agent of this company stated as an inducement for moderate demands that a station would be placed in Whately. This was said in good faith, with the expectation that a station, for which land was procured, would be placed there. It further appears that the agent had no right to make any promise on the subject, and that the president carefully refrained from authorizing any such promise. But the accredited agent of the corporation did use the fact as a measure of reducing land damages, and this has some equitable weight in re-enforcing the demand of the people for accommodation.

That claim, however, does not need this aid. The mistake of the railroad managers in such cases is in supposing that the interests of the stockholders are paramount, and that the earning of dividends is the sole object to be sought in operating a road. Our Supreme Court has said more than once that a railroad corporation is created mainly for the public benefit, and only incidentally for its own profit. And because directors are liable to take a wrong view of their duties the State reserves full control, and delegates to its agents the power of supervising the operation of these corporations.

The Board deems that the establishment of a station at Whately, with facilities for passenger and freight business, is reasonable and expedient to promote the convenience and accommodation of the public, and recommends that as soon as may be such a station shall be established and maintained.

By the Board,

THOMAS RUSSELL, *Chairman*.

AUG. 23, 1886.

JOHN H. PAINE AND OTHERS *v.* NEW YORK AND
NEW ENGLAND RAILROAD COMPANY.

The petitioners, who use the Forest Avenue station on the New York & New England Railroad, complain that the accommodations furnished at this station are inadequate and unsuitable, and ask a

recommendation that a proper station house be erected. Nothing but a shed is now furnished for passengers, and as it is not cared for by an agent it is generally in an unfit condition for use. The numerous passengers who are at this station making 16,000 trips in a year, and who have been drawn to this spot by the promises of the railroad managers, are fairly entitled to better accommodations. The evidence at a former hearing upon the proposed withdrawal of trains answers all the objections that can be made to the erection and maintenance of a proper station house. It is true that the short distance from Boston and the consequently low fare keep down the receipts. It is true also that the want of accommodations and the fear of losing them altogether check the growth of the community that resort to this station. But, as we have often had occasion to say, a railroad corporation takes its franchise as a whole. It cannot take the benefits and shirk the burdens that are imposed when a charter is accepted. One of these burdens is the affording of reasonable accommodations to residents on the line, even where a particular track, a stop, or even a station may not be of itself remunerative. But this is especially the case where, as in this case, promises were given and inducements were held out for investing in land and for building houses, in the faith of proper and continued railroad facilities. Here it was especially agreed in a deed of gift that a passenger station should be established and kept up. The policy may have been unwise, and a new management may modify it, but not at the cost of the equitable rights of residents who have been attracted to the place by that policy. This would be unwise and unfair. The people living near Forest Avenue are entitled to a station; and, therefore, they are entitled to a decent and convenient station house, and we recommend to the president and directors of the company that they establish and maintain such a station house.

By the Board,

THOMAS RUSSELL, *Chairman*.

JUNE 14, 1886.

BOARD OF RAILROAD COMMISSIONERS,
NO. 20 BEACON STREET,
BOSTON, June 16, 1886.

J. W. PERKINS, *Assistant to President of New York & New England Railroad Company*.

DEAR SIR:—The Board has received your acknowledgment of its recommendation that a station house be erected and maintained at Forest Avenue. In reply, you state that after July 1 all stops of trains at this station will be discontinued.

Our communication was addressed to the president and directors of the company, and we await a reply from that body. The course which you propose would be (as appears from the facts set forth in our decision of October 20) an act of grossly bad faith toward the people who have been led to settle and make investments at this place by the implied and expressed promises of the managers of the corporation.

It would also seem like an attempt to punish the petitioners, who, in pursuance of law, have asked us to recommend an increase of accommodations, and who are rebuked by the withdrawal of all accommodations.

The Board will not believe that the directors of the company will pursue this dishonest and vindictive course until we are compelled to believe it by receiving a formal vote to that effect. And we are confident that the directors have not delegated to any official in advance authority to make such an answer to a recommendation of this Board.

Yours truly,

THOMAS RUSSELL, *Chairman.*

[The petitioners then applied to the Legislature, and an act was passed authorizing the Board, after a hearing, to order the railroad company to construct a station at Forest Avenue, if in their judgment the obligations of the company or public exigency required it (Acts of 1886, ch. 350). Hearings were had, and the Board took action as follows]

COMMONWEALTH OF MASSACHUSETTS,
BOARD OF RAILROAD COMMISSIONERS,
BOSTON, July 14, 1886.

To the President and Directors of the New York and New England Railroad Company.

Upon the petition of John H. Paine and others, being more than twenty legal voters of Boston, proceeding under chap. 350 of the Acts of 1886, after notice to said company and appearance by its counsel, and after hearing of all parties interested, it appears to the Board that the duties and obligations of said company and the public exigency require that said company construct and maintain upon its railroad, at the place called Forest Avenue Station, a station house reasonably commodious and furnished for the use of passengers, and also stop at said station, both before and after the erection of said station house, the following specified trains: namely, the outward trains now leaving Boston at 7 and 9.30 A. M., 1, 2.30, 5.15, 6.35, 7.30, 9.15 and 11.15 P. M.; and the inward trains leaving Hyde Park at 6.13, 6.48, 7.13 and 8.08 A. M., 1.03, 2.18, 5.18, 7.08 and 10.23 P. M., or

trains corresponding thereto and furnishing substantially the same accommodation.

And said company is hereby ordered to erect and maintain such a station house and to stop as aforesaid such trains.

And it is recommended that a station house, substantially like that at North Webster, on the Norwich & Worcester Railroad, be constructed under the foregoing order, with such variations from said model as may be agreed on by Charles P. Clark, president of the company, and John H. Paine, who heads the petition.

By the Board,

WM. A. CRAFTS, *Clerk.*

[G.]

EXIGENCY FOR NEW ROADS.

PETITIONS OF THE BOSTON & LOWELL RAILROAD CORPORATION AND EASTERN RAILROAD COMPANY, RESPECTIVELY, FOR BRANCHES IN SALEM.

The petition of the Boston & Lowell Railroad Corporation, for a certificate of exigency for a branch in Salem leading to several tanneries, presents some novel questions of law. Several citizens petition in aid; and remonstrances were made by the Eastern Railroad Company and by citizens of Salem and Peabody.

The Boston & Lowell Railroad Company succeeds to the special privileges given to the Salem & Lowell Railroad Company by chapter 128 of 1851. Among those rights is the authority to run over the Essex Railroad (now a part of the Eastern Railroad) with its own motive power, and to build branches from the Essex road on land occupied by the Salem & Lowell. Under this power a branch, many years since, was constructed from the Essex Railroad on land now of the Boston & Lowell. An extension of this branch has recently been laid on land owned and occupied by the Boston & Lowell, reaching the border of the canal. The proposed branch extends from the terminus of this extension to the tanneries.

Various legal objections are made to this request: —

1. The jurisdiction of this Board was denied because section 3 of chapter 265 of 1882 says: "The provisions of this act shall not apply to any railroad corporation acting under the authority of a special act of the Legislature." But this clause was only intended to relieve a corporation especially authorized to construct a road from the necessity of applying for a certificate. It does not refer to all corporations created by special act, or existing under special act, but to corporations "acting," *i. e.*, proceeding to construct a road under special act. It was inserted evidently from extra caution. But that it does not refer to such a case as this is plain from the last clause of the sentence: "But the provisions hereof shall apply to any railroad corporation acting under section 139 of chapter 112 of the Public Statutes." This

is the section applicable to all railroad companies seeking to construct branches, whether organized under general law or special charter. Under this section the petitioners apply, having reached the limit fixed by their charter and desiring to go further.

The construction claimed by the remonstrants would give to all chartered railroad companies the power to build at liberty all possible branches and extensions without any decree of exigency from any tribunal; while all new companies are compelled to procure such a decree. It is safe to say that such a proposition could never have received a single vote in either branch of the Legislature.

Finally, the construction now given by the Board has been universally assented to since the passage of the act, and has had the practical approval of eminent counsel representing various railroad companies, including the Boston & Maine Railroad and Eastern Railroad Company.

2. It was argued that the construction of the spur uniting with the branch of the old Salem & Lowell Railroad was an evasion of the purposes of the Act of 1851. For the design of that act was to allow tracks on land of the Salem & Lowell for the transaction of local business. This spur is covered by the letter of the law, and its construction does not seem to contravene its spirit. The railroad company builds where the special law permits, and asks leave to extend where the new law permits; and both extensions are for the same general end,—the giving of better facilities to local business.

3. It is urged that the law (sect. 139) allows branches of the main line and extensions of the main line, but does not allow the extension of a branch already constructed, or a branch of any extension already made. The language of the law does not compel any such narrow construction. The words are: "A railroad corporation after having finished the construction of its main line . . . may build branches or extensions thereof." In common language as applied to the other matters, the branch of a branch is a branch of the main trunk. The extension of a branch becomes a branch or part of a branch of the main line. Certainly it is an extension of it under the doctrine of *South Boston Railroad Co. v. Middlesex Railroad Co.* (121 Mass. 485), where an addition track of the defendant company was held to be an "extension" of its original track, although it was not connected with it except by travelling over the tracks of another railway corporation.

It is said that with this view of the law the power of branching and extending would be unlimited. But under section 139 of chapter 112, before the passage of the "exigency act," this power was practically restricted by no limits except State lines. It needs clear words to show that the Legislature, while giving a ten-mile railroad power to

extend one hundred miles without asking leave of any one, intended to forbid the slightest extension of a branch which was working well, and which by its working had proved the expediency of its extension. The legality of such an extension has heretofore been assumed, and heavy investments have been made upon the faith that they were lawful.

4. A more difficult question is raised by the fact that the initial point of the proposed extension is on a track connecting with the Essex Railroad. It is said that the law giving power to the Salem & Lowell Railroad Company to use the Essex Railroad, and to build branches at its own expense, does not make them branches of the Salem & Lowell, but of the Essex Railroad, so that in effect the petitioners are asking leave to build under the general law a branch of another and (as it happens) a rival railroad. The answer to this is that the proposed tracks are an extension of tracks owned by the petitioners, and connecting over the Essex with the main line of the petitioners' road. And this under the authority cited above (121 Mass.) may be fairly held to be an "extension" of the petitioners' line. A somewhat similar decision was made by the Supreme Court of Missouri in *Atlantic & Pacific R. R. Co. v. St. Louis*, 66 Missouri, 228, where under the authority to construct branches the railroad company was allowed to construct an extension not directly connecting with its main tracks, but starting from a point a little easterly from its terminus. What seems peculiar in the present case grows out of the peculiar legislation of 1851.

The opinion of the Board upon this point is also sustained by the very able opinion of the Supreme Court of Minnesota, in the case of the *Atchison, Topeka & Santa Fé R.R. Co. v. Fletcher*. There a road was held to connect with the Atchison, where it connected through intervening roads leased by the Atchison, and even where there was a missing link between Deming and Benson, a distance of about 174 miles, still as the Atchison had a right to run over this road to the Sonora railway, the Sonora was connected with the Atchison.

Under the authority of the cases cited above, railroad companies have heretofore, with the assent of the Board, but without much discussion of the point, constructed branch tracks running not directly from their main lines, but from tracks which lie out of their location and are owned by other parties, but over which the petitioners had a license to run. In these cases the Board has taken the tracks as it found them existing in fact and operated in fact, and has allowed their extension. It is now urged with much force that where the intervening tracks are used by authority of a statute, the right to an extension is quite as clear as if they were used by virtue of a revocable license. The point has become important, and the Board by assum-

ing jurisdiction presents the question in the most convenient way for obtaining an authoritative decision by the Supreme Court.

The exigency for better railroad facilities is clearly shown by the petitioner, and is admitted by the remonstrants. It is the sort of exigency that recently called for an extension of the Lawrence Branch of the Eastern Railroad in Peabody, viz., "that by giving improved facilities for business the cost of conducting it will be decreased and its prosperity promoted."

The chief objection to the petition lies in the fact that the proposed railroad will cross at grade a busy thoroughfare, called Boston Street, at the foot of a steep hill, the street being occupied by two street-railway companies. The question of allowing a level crossing is not formally before the Board. The assent of the County and the Railroad Commissioners must be had before that can be allowed. But where the situation is such that a grade crossing is the only practicable one, and when the petitioners declare it to be so, the fact must be considered whether there is an exigency for the railroad such as will justify the crossing. It would be worse than idle to grant a certificate knowing that we should impose a condition that would make it useless. In almost any case there are conveniences on the one side to be weighed against inconveniences on the other, and the crossing at a level over the most travelled street in Salem is an inconvenience and something more.

In this case we are not obliged to decide the question, for the Eastern Railroad Company requests an exigency certificate for a branch road from its main line near Mill Street to Proctor's Court, and offers to furnish a portion of the needed facilities without crossing any actually existing street at grade, and also without obstruction to Proctor's Court. The two cases have been heard together. If another road will furnish the required accommodation without the dangerous crossing, there is no exigency for creating the danger. By granting the petition of the Boston & Lowell so far as a route up to Boston Street is concerned, the tanners and curriers on the northerly side of that street will be furnished by it with the needed facilities. The Eastern Railroad extension will supply facilities to all others; and the general public will be saved from the danger of an unusually perilous grade crossing.

It is urged as an objection to the Eastern extension that it will go under Highland Avenue, which will cross it by an overhead bridge. But the Board has long since decided, and the Legislature has practically decided, that such a structure is less dangerous than a grade crossing. This is not an open question to be debated in every case, but a settled fact.

It is also argued that this route would interfere with certain con-

templated improvements in the southerly part of Salem. But these improvements have been contemplated so long without any visible result, that they should not interfere with the practical facilities needed at the present time. And the extension of the railroad is likely to aid the proposed enterprise as much as it will hinder it. The scheme is as old as 1872, when special legislation was obtained to further it. After so long a period we ought not to regard this project as a serious obstacle to a needed improvement, nor to view with much alarm a "paper crossing" over a contemplated street. The city of Salem has not objected to the proposed extension, taking no part in the controversy.

Suggestions were made as to the motives of the Eastern Railroad Company, and it was said that it would never have acted but for the enterprise of the Boston & Lowell. But with such considerations we have nothing to do. The sole question for the Board is how to secure the greatest good for the public with the least harm. If it were shown that the Eastern Railroad Company had neglected its duty to the community, and that it now offers to do its duty, actuated solely by a spirit of rivalry, it should be allowed to perform the offered service if the public will be better accommodated. If the people can lawfully gain anything from the rivalry of two corporations, they have a right to do so. We desire that the public may be served even though it be done from motives "of envy and strife." Motives of railroad managers have no weight except as they may affect their action. If in obedience to this suggestion we should prefer the Boston & Lowell project to the extension of the Eastern, we should expose the people of Salem and Peabody to the lasting perils of a peculiarly dangerous grade crossing, as a punishment for the supposed neglect of their interests in past time by the Eastern Railroad Company.

As to the comparative value of the service which the two companies can render, the Boston & Lowell has had the advantage of being connected with Western lines, enabling it to furnish for East-bound freight through rates for delivery at the mills. But the Eastern managers have distinctly promised the same advantage to their customers, and have made arrangements enabling them to fulfil their engagements. Obtaining a franchise by such a promise, they will keep it. The facilities for shipping the products of manufacture would certainly be as good on the Eastern as on the Boston & Lowell.

A certificate under chapter 265 of 1882 will be issued to the Boston & Lowell corporation for a portion of its route.

A certificate will be issued to the Eastern Railroad Company for the route requested.

By the Board,

THOMAS RUSSELL, *Chairman.*

NAHANT RAILROAD ASSOCIATION, PETITIONERS FOR A
CERTIFICATE OF EXIGENCY FOR A RAILROAD FROM
LYNN TO NAHANT.

The Nahant Railroad Association asks for a certificate that public necessity and convenience require the construction of a railroad from Lynn to Nahant. A petition in aid was received from 123 citizens of Lynn. The town of Nahant opposes the project by its selectmen, by remonstrances, and finally by a vote of 94 to 6 in a recent town meeting. This was a full expression of the wishes of the town, which threw only 82 votes at the last State election. It was almost wholly made by constant residents, or, as they are called, "natives," and it included all the tavern-keepers of the place, who are in some sort judges as to the needs of public travel, and who are generally not averse to increasing its facilities.

The main object of the contemplated road is to furnish the general public with an opportunity to enjoy the fresh air and fine scenery of Nahant. It would, of course, give facilities for travel to and from Boston, and it was said that it would open the town to settlement by a new class of residents, working in Lynn and occupying cheap houses in Nahant. But the chief object is to accommodate pleasure travel. This is a lawful cause for exercising the right of eminent domain, as was expressly decided in regard to a public way in the case of *Higginson v. Nahant*, 11 Allen, 530, where a town-way was laid out "with the design to provide access, not for the town merely, but for the public, to places esteemed as pleasing natural scenery."

The chief objection to the project is that it will injure and practically destroy the present approach to Nahant by Long Beach, the only avenue by which its people can drive to the main-land. It seems to us that the petitioners have underrated this inconvenience, while they have greatly overrated the demand for railroad facilities. Their estimate is founded upon the great number of people who now, in the warm season, drive or ride from Lynn to Nahant. But the number who will use a railroad cannot be safely reckoned from the number of those who, on pleasant days, are conveyed in open carriages over one of the most beautiful beaches in New England. The beach, as well as the rocky promontory, is one of the charms of Nahant; and it will cease to be attractive when it is defaced and made dangerous by a steam railroad. We do not believe that the facilities afforded by such a road would compensate for the great injury to be done. The people desire other facilities which will not deprive the public of the health and pleasure which are found by driving over the beach. We believe

that the number of workingmen in Lynn who would seek cheap homes in Nahant has been overestimated. We feel that great weight should be given to the wishes of the community, especially when the proposed railroad terminates in the town. And, above all, we agree with the remonstrants in feeling that the public loss and inconvenience resulting from such a project overbalance any slight accommodation that it would afford. And, therefore, the Board declines to grant the certificate.

THOMAS RUSSELL, *Chairman*.

MARCH 31, 1886.

[H.]

MISCELLANEOUS.

SELECTMEN OF WAREHAM *v.* ONSET BAY GROVE
ASSOCIATION AND ITS LESSEE.*

The selectmen of Wareham complain that the association had constructed, and is operating, a railroad in that town without any lawful authority, and ask the Board to intervene, under the provisions of sect. 15, chap. 112 of the Public Statutes.

The road was constructed wholly on the land of the respondents, from a point near the Old Colony Railroad to a central point in the grove, and is a little over a mile long. It was built in good faith, without any special authority, in the belief that no such authority was needed. It was constructed and equipped for operation by steam power, and is intended, as its managers say, both for freight and passenger traffic.

The law as to railroads for private use is contained in sects. 223 and 224, chap. 112, and is, in brief, as follows: "A person or corporation may construct a railroad for private use *in the transportation of freight*," provided that it shall not be "constructed across or upon a highway, town-way or travelled place without the consent of the . . . selectmen of the town, nor except in a place or manner approved by them." If they consent, they may from time to time regulate the motive power, speed and time and manner of use. If they allow the use of steam power, the general law as to the crossing of ways and travelled places shall apply, *i.e.*, the consent of the County and Railroad Commissioners must be obtained.

This road, while it occupies and crosses no town-way or highway, runs through a public thoroughfare called "Main Street," and crosses

* Omitted from last Annual Report.

others, among them an important one called "Onset Avenue." These have been laid out by the association for public travel by foot passengers and teams, and during "the season" they are as much travelled as any public way in the town.

Although these ways are designated as "streets" and "avenues," there is no claim that they are town-ways, streets or highways, or that the town is liable to keep them in order, or to respond in damages for any accident happening by reason of their being defective. One of them, at least, has a warning board stating this fact.

But the law is not confined to legally laid out ways. It includes all "travelled places;" meaning, as we suppose, all places habitually travelled by the public. The Supreme Court construing these words, in another provision of law, held that they applied to a travelled crossing never laid out, accepted or acknowledged by the town, and guarded by a signboard warning the public not to use it as it was private and dangerous. And a railroad company was held liable because it had not placed a signboard at this crossing. (*Whittaker v. Boston & Maine Railroad*, 7 Gray, 98.) The words "travelled place," used in chap. 222 of 1849, under which this was decided, are repeated in sect. 165 of chap. 112, where they are clearly used in distinction from and extension of the words "highway" and "town-way" in sect. 164. The words are used again in sect. 166, referring to gates and flagmen. And this Board has applied the words to such crossings as those in question, with the acquiescence of railroad managers.

Unless the words "travelled place" have a different meaning in different sections of the same chapter, and especially in sect. 165 and sect. 224, the question seems to be settled by the court. This railroad does occupy and does cross a travelled place; it does so without the consent of the selectmen, and its construction as a freight railroad was therefore illegal, while its unauthorized operation with steam power is another illegality.

The reason for the various provisions extending safeguards to "travelled places," as well as to public ways, are too plain to need statement. The sole object is security from danger. And the danger depends, not on the origin of the way, but upon the technical question (often an intricate one) of its legal condition, and upon the fact that it is habitually travelled. At all events it is the law; and this is decisive of the question presented to us as to this freight and passenger railroad.

It has been suggested that a passenger road might be constructed and operated upon the land of the owners without complying with any legal provisions as to railroads. Of course, a final decision can only be made by the courts. But the statute seems to point strongly to a decision. The question is not whether a man may place ties and rails

on his own land, but whether he can operate such a railroad as a common carrier, taking passengers for hire. It would seem that chap. 112 was intended to cover all such cases, and to place all such enterprises under State control, for the sake of securing to the public safety, reasonable accommodation and other rights. The definition in sect. 1 makes the phrase "railroads and railways" in chaps. 112 and 113 include "all railroads and railways in this Commonwealth, except tramways in mines and marine railways." The exception strengthens the rule by referring to structures far removed from the ordinary understanding of the words. And again, by sect. 14, the Board has "general supervision of all railroads and railways," and the provisions of the following six sections apply to all, and to the corporations, trustees *or others* owning or operating them.

Again, the express provision authorizing freight roads for private use seems to imply that passenger roads for public use cannot be constructed except under the general provisions of the law. The expression as to one class, a class less in need of State supervision, would appear to be an exclusion of the other class. At all events, we cannot advise the association or their lessee that illegality would be avoided by using their tracks exclusively for a passenger railroad, unless they comply with the provisions of the general railroad law.

It has been suggested that the track might be operated as a street railway. The Board find nothing in the law to prevent this. The law does not provide that such railways shall always be constructed in streets. The statute definition of "street railways" makes no reference to their location in streets. In fact, one such railway exists in this State, running on private property the whole length of a beach, without regard to streets. The location is given to the selectmen, and they decide on the motive power to be used. The primary cause of giving them this power may be the fact that such tracks are usually laid in streets. But it is given them in all cases, and this local tribunal seems to be the fitting one for guarding interests that are in great part local.

It was supposed by some of the respondents that the charter giving the association the power to build, lease and sell under such rules as it may prescribe, gave to it the power of the selectmen in this regard. But this theory is untenable. The power to make rules is in its terms a restricted one. It does not set aside the general laws of the State. It would not, for instance, justify the directors in licensing the sale of liquor on their land. Just as little does it justify them in locating a street railway, — a power given exclusively to the selectmen. But it is unnecessary to consider this question further; for no street railway corporation has been organized for the operation of such a railway.

The Board regrets the difficulty into which innocent parties have fallen, and would be glad to see a way by which they might escape loss and delay. But our attention has been formally called to the matter by the selectmen, who, though no legal liability rests upon them or the town, feel a moral responsibility as “fathers of the town,” that the public shall have all the safeguards required by law. And we are compelled to give notice to the association and to its lessees that the construction of the road was illegal, and that its operation without due proceedings under the statute would be a further violation of law.

For the Board,

THOMAS RUSSELL, *Chairman.*

JULY 22, 1885.

THE ONSET BAY GROVE RAILROAD ASSOCIATION,
PETITIONERS FOR A ROUTE.

The Onset Bay Grove Railroad Association having failed to agree with the selectmen of Wareham as to the route of their railroad, have applied to the Board to fix a route. The association desire to go from the Old Colony station to Shell Point by a direct line through Main Street and Central Avenue. The selectmen's route is identical with this until it reaches the intersection of Twelfth Street and Central Avenue. There it runs off in a northwesterly direction, reaching Shell Point by a line where there has been less building than on the other. For this the selectmen have given forcible reasons. We have not found it necessary to consider those reasons carefully, nor to compare them with the strong opinions entertained by most of the interested parties in favor of the other route.

Since the hearing on the “exigency certificate,” a new fact has been developed by the laying out of a town-way, which crosses the railroad, as planned by the association, and under such circumstances as to make a grade crossing absolutely necessary. Moreover, this would be a peculiarly dangerous crossing, for the track would be in the centre of an avenue, which will always be a crowded thoroughfare, and which would be specially crowded at the time of the arrival of the cars. There is no reason to suppose that the County Commissioners would grant a level crossing. And if they did, the Board, as at present advised, would not assent to it. It would be useless to grant formally a route which we know could never be used. As to the selectmen's route, the association declare that they do not desire it, and

would not avail themselves of it if it were granted. Our duty, therefore, seems to be to grant the line on which both parties agree, placing the western terminus on or near the easterly side of the new town-way. A formal certificate to this effect will be issued to the directors.

By the Board,

THOMAS RUSSELL, *Chairman.*

JAN. 27, 1886.

IN THE MATTER OF THE OAK GROVE STATION.

To the President and Directors of the Boston & Maine Railroad.

GENTLEMEN:—The petition of Gilman Page and others relative to Oak Grove Station, which was referred to this Board by the mayor and aldermen of Malden, was set down for hearing at 10 A.M. to-day; but, owing to the neglect of the petitioners to insert our advertisement in the Malden newspaper, no public notice was given. No one appeared for the petitioners, but a letter was received asking us to have a hearing “in the vicinity of the station.” This request, at this season, we do not regard as reasonable, nor do we think it desirable to attempt a judgment upon the convenience of the building, before it is finished. We have, however, acknowledged the fact that the petitioners are entitled to a hearing in Malden, when the matter is finally heard, and we announced that an adjournment to Malden would be granted, if desired.

As neither the petitioners nor the Board can judge of the fitness of the building until it is completed, there will be no further hearing at present. When you have completed the station, we shall hear the parties, if they then desire it. To prevent misapprehension on their part or yours, we will add that it is no part of our duty to superintend details of construction. The location, by law, required the assent of this Board; and it was fixed in accordance with the vote of the city government and with the wishes of the many as compared with the interests or prejudices of the few. The question of site is settled, and is not a subject of discussion. The particulars of arrangements are matters to be settled by you in consultation with your architect. We have no desire or right to interfere. If a railroad company should fail to furnish sufficient facilities, and still more, if it should create dangers for its customers, the Board would recommend a change. But it was never designed that we should act as supervising architects in the construction of stations. Whether the business of this place justifies the

construction of a building as extensive and costly as that which the company proposes to build, is a question beyond our jurisdiction. Nor is it within our jurisdiction to direct the precise manner in which it shall be erected and furnished.

For the Board,

THOMAS RUSSELL, *Chairman.*

JAN. 12, 1886.

JOHN H. ROBINSON AND OTHERS OF ARLINGTON, PETITIONERS FOR PROHIBITION OF WHISTLING OF LOCOMOTIVES ON THE LEXINGTON BRANCH RAILROAD AT CERTAIN CROSSINGS.

The petitioners were not numerous, and did not include the selectmen. The corporation made no objection, but by its manager pointed out the peculiar dangers existing at the first-named crossing.

There is no good reason against granting the petition, so far as Water Street is concerned; and an order will issue forbidding whistling as a crossing signal at this point. But the case at Arlington Avenue is different. The gates are not parallel with the railroad, and they fail to guard two private ways, one of which leads from a livery stable. These ways, when the gates are closed, are open to tempt travellers into the space on the railroad track between the gates. In addition to this, it was shown that many persons, including some of the petitioners, were accustomed on their way to the station to walk on the track instead of using the highway. This greatly increases the danger at this point, and calls for additional precautions. The main purpose of the whistle is to warn travellers who are crossing the track, but it is also of service in warning those who are walking along the track; and we cannot direct its discontinuance at a point where such occupation of the tracks is habitual.

It is true that persons so using the railroad are trespassers and violators of law. But the penalty which is actually inflicted upon them in case of accident is so terrible that we should not be justified in exposing them to it by ordering the railroad operators to discontinue the most effectual warning. It is a case where men must be protected against the results of their own negligence, even to the annoyance of innocent persons. No order is given as to this crossing.

It appears that Water Street crossing is one where the grades could easily be separated. It is hoped that an order for discontinuance of whistling there will not prevent an application for such separation.

By the Board,

THOMAS RUSSELL, *Chairman*.

JAN. 13, 1886.

GEORGE ROBINSON AND OTHERS OF PALMER *v.* BOSTON & ALBANY RAILROAD COMPANY.

The petitioners, who are a committee of the town, including the selectmen, complain that the station at Palmer has no suitable means of access, and ask a recommendation that the company improve the approaches thereto. The present union station was located by the corporation with the assent of the town and of this Board; and it was built and decorated at great cost. But in order to cut off a dangerous approach from Main Street a fence has been erected, which prevents access to the station at the point nearest the centre of business, and forces most of the people to use a circuitous route, adding a quarter of a mile to the distance. This inconvenience is suffered not only by the great body of citizens in the village, but of several other places. The remedy sought by the petitioners is by a foot-way crossing the tracks at a level, but suggestions were also made as to an overhead or underneath crossing.

The first question is one of jurisdiction; and it was for the purpose of hearing an argument on this question, as well as on the merits, that a hearing was notified. As the only power of the Board is to give a recommendation, it might seem to some superfluous to consider such a question. But this is not the theory of our law. Its intention is that great weight should attach to a formal recommendation founded on the statute, — more weight than would be given to a mere voluntary suggestion. So it has generally proved with the recommendations heretofore given by the Board. Elsewhere the value of such a jurisdiction has not been appreciated. We are told that on a recent occasion the English House of Commons laughed at the idea of a Board having only authority to recommend. They could not understand a decision which did not result in an execution, and which could not be enforced by a constable. Here for seventeen years such decisions made by the Board as arbitrators between the companies and the public have been found to be of value. That value would be lost or greatly impaired if recommendations were made recklessly and without regard to the provisions of law.

The only possible source of authority for acting in this case is in sect. 16 of chap. 112: "The Board, whenever it deems that repairs are necessary upon any railroad . . . or an addition to or change of its stations or station-houses . . . is reasonable and expedient in order to promote the security, convenience and accommodation of the public, shall in writing inform the corporation," etc. The words refer to new stations, new station-houses and alterations of station-houses. It would be a perversion of language to hold that they cover the laying out of a way to a station. And such a construction would be more unnatural because the subject of crossings over railroads is regulated by special provisions of law. The Board denies the prayer of the petition for want of jurisdiction.

THOMAS RUSSELL, *Chairman*.

MARCH 31, 1886.

WILLIAM H. WARE AND OTHERS *v.* BOSTON & ALBANY
RAILROAD COMPANY.

William H. Ware and others complain of various annoyances suffered by residents between Berkeley and Ferdinand Streets from the operation of the Boston & Albany Railroad. They complain of smoke, cinders, and of increasing and unnecessary noise made by the engines and by employees.

Of course some annoyance to the neighborhood is incidental to the operation of a railroad, especially in a city. So far as it is necessary, it has been paid for in land damages to original holders of the land. They are paid in advance for the prospective increase of these annoyances, such as will result from an increase of traffic. And those who buy land or build or hire houses in the immediate neighborhood of a railroad do it with full knowledge of the fact that they are liable to discomfort, and that they are not entitled to relief from it, or to any further compensation for its existence. It is not necessarily ground for complaint to this Board, or for proceedings in a court of law, to show that very great, or even intolerable, discomfort is caused to persons who live close to a railroad by its operation. That which would otherwise be a nuisance has been legalized for public reasons. So far as the annoyance is unnecessary it is illegal, and it would be the desire of any good railroad manager, without close inquiry as to its legality, to reduce the annoyance to the narrowest limits.

The parties here seem to be in error as to the increase of smoke and cinders. The Boston & Albany managers have done what they could to reduce that annoyance. In so doing they have necessarily

increased the discomfort arising from an increase of noise. The general opinion of railroad men is, that by using the extended smoke-box the balance is in favor of comfort in the vicinity of the railroads. The switching engine now in use saves its cinders, and reduces the annoyance arising from this source. Its exhaust makes more noise than the old form. But the witness who expressed a desire for the switching engine used on the Old Colony Railroad made a great mistake. The Old Colony was a pioneer in using the engine complained of. The Boston & Albany was the last company to adopt it for use in Boston. The object in so doing was to reduce the discomfort of neighbors and passengers.

Upon the imperfect evidence before us, we cannot say that the object has not been accomplished. The increase of smoke and cinders was not connected by any testimony with the use of shifting engines. It probably results from the great increase of traffic. So far as it is a necessary consequence of that increase, it is not a just cause of complaint; and the petitioners, indeed, disclaimed any complaint whatever connected with the operation of the main track of the road.

As to the disturbance arising from the loud talk of the employees, and especially from vulgar, insulting and profane outcries, it seems that this arises, not from the conduct of any one directly employed by the Boston & Albany company, but from those who have charge of Wagner cars.

It need not be said that the Boston & Albany managers ought not to allow, and do not desire to have, the peace of the neighborhood disturbed by men who are in any way connected with the train service on their road. And they will put an end to such disturbances if they can. The petitioners can aid them in carrying out their desire by promptly reporting any case with as much detail as possible. General orders have, as we are assured, been given. But to fix the fault upon any offender, an early complaint is needed in each case.

Some other matters were complained of as to which the jurisdiction of this Board might be doubted; but the managers have promised that, so far as is possible, the just wishes of residents in the vicinity shall be complied with, and that the discomfort arising from operation of their road shall be made as small as it can be consistently with the discharge of their duties as common carriers.

By the Board,

THOMAS RUSSELL, *Chairman*

MAYOR AND ALDERMEN OF WORCESTER *v.* BOSTON
& ALBANY, NORWICH & WORCESTER, AND PROVI-
DENCE & WORCESTER RAILROAD COMPANIES.

The mayor and aldermen of Worcester, acting on the petition of many leading citizens, complain that the bridges by which the above-named roads pass over Southbridge Street are so constructed that horses driven under them are frightened by the noise and by the escape of steam, causing great danger and frequent accidents; and they ask the Board to recommend such action as will abate or reduce this evil. The selectmen of Auburn and Oxford join in support of this petition. The testimony proved that the annoyance and peril arising from the use of these bridges are almost insufferable, resulting in frequent accidents, one of which proved fatal. A view corroborated this testimony, and showed that the results as described are inevitable, while the bridges remain as they now are. The trouble is greatly aggravated by the increase of travel on the street, and by the recent construction of a street railway. The increased railroad traffic also adds to the danger.

Objection was made to the consideration of this case by the Board, upon the ground that full jurisdiction is given (by sect. 129, chap. 112, P. S.) to the County Commissioners to deal with such cases, — the section providing, among other things, for “an alteration . . . in a bridge at the crossing” of a highway and a railroad; and if the County Commissioners have authority to act in the premises, it would be a delicate matter for this Board, which, in such cases, is an appellate tribunal, to give an opinion in advance upon a matter which might, on appeal, come before it for final decision. But the mere fact that other tribunals have power to take final action in any matter does not, of itself, deprive this Board of power to recommend improvement. If such a recommendation is a duty, it must be done, however delicate its performance may be. And it has been the practice of the Board in other cases to recommend such action as will prevent the need of applying to other tribunals.

In this case, whatever the authority of the County Commissioners may be, the courts would seem to have jurisdiction to prevent a dangerous nuisance, or to inflict penalties upon any corporation for maintaining it. If one-half the testimony is true (and it was left without contradiction), an indictment would lie against one or all of the railroad companies named. But this fact would not deprive the Board of the power to recommend improvements in construction. The existence of a nuisance perilous to life and limb would rather make it our duty to advise that it should be abated without waiting for an in-

dictionment. But it seems at least doubtful whether sect. 129 applies to such a case. The words may literally cover the proposed action, but the context and the history of legislation show that the mind of the Legislature was fixed upon other matters. Location, altitude, the length and width of bridges, were the important subjects considered by the framers of the statutes which now appear in this section. It would be unfortunate if a recommendation could not be given for a comparatively slight improvement in a bridge, which is demanded for the safety of travel, without using the complicated machinery of sects. 129, 134, with the necessary hearings before several tribunals, judicial and otherwise. Such proceedings would certainly be obnoxious to railroad companies, and would probably be resisted by them. It is said that, if a recommendation is carried out, the cost will fall upon the railroad companies alone, while, by proceedings under sect. 129, the cost may be equitably distributed between the corporations, county, city and towns specially interested. And it might be argued that such a contribution is peculiarly equitable, when the existing mode of crossing has long been acquiesced in, and may be presumed to have once been satisfactory to the municipalities concerned. But, if this were proved, it would not necessarily follow that the municipal bodies interested ought to share in the cost of the needed improvement. The road is bound, not only to cross by a bridge originally safe for travellers passing under it, but if, by reason of a great increase in travel or otherwise, the bridge as constructed becomes unsafe or becomes a source of danger, then it is the duty of the railroad company to remove the cause of danger. This was the view taken by the Supreme Court in *Cooke v. The Boston & Lowell Railroad Company*, 133 Mass. 185, where it was held that, although a bridge built by a railroad over a street was adequate when built, yet, if by reason of increased travel on the highway it had become inadequate and obstructive to the safe use of the highway, the railroad company must alter it. And in this case the corporation was held liable for personal injuries received by a traveller on the highway. This decision followed the analogous case of *Commonwealth v. New Bedford Bridge*, 2 Gray, 339, where it was held that the obligation fixed by a charter to build "suitable draws," imposed the duty not only of building draws suitable at the time to the needs of navigation, but of building and maintaining draws of such width as vessels might need "in the progress of time and the advancement of commercial intercourse." The cases before us are analogous to those cited. The passage under the bridges, fairly safe once, has become dangerous because of the enormous increase of travel. It was the duty of each railroad company originally to construct its bridges so as not to render unsafe travelling on the highway as then used. Now it is the

duty of each company to alter its bridges so as not to render unsafe travelling on the highway as it is now used.

The suggestion that sect. 135 of chap. 112 gives jurisdiction of this case to County Commissioners does not seem correct in view of the construction given to that provision of law in *Springfield v. Connecticut River Railroad Company*, 4 Cushing, 63. Nor would it be easy to frame a petition under which the County Commissioners could pass a decree in this case.

We believe that public convenience and safety call for a recommendation under this petition for such additions as will diminish or destroy the danger to travellers arising from the use of these bridges. In deciding upon the details, as to which the testimony was scanty, we have availed ourselves of the skill of an expert engineer, and the Board adjudges that the complaint is well founded, and informs the corporations above named that it considers the following-named improvements and changes necessary to promote the security and convenience of the public, viz., that a double flooring be laid across each bridge from fence to fence. We would suggest that two thicknesses of matched spruce, each one inch in thickness, breaking joints, should be laid on the railroad ties, with the rails upon the boarding. Underneath a system of purlins should be supported on the bottom flanges of the floor beams, with rafters and two layers of one-inch matched spruce.* Some extension of the fences at the ends of the bridges is also advisable; and we hope that this will prove sufficient without doubling the fences. If necessary, this also could be done afterward, leaving an air space between the two fences. At present we only recommend that the double flooring, as above indicated, be laid as soon as possible.

By the Board,

THOMAS RUSSELL, *Chairman*.

Nov. 3, 1886.

B. W. MARKS AND OTHERS, RESIDENTS NEAR WELLINGTON STATION, *v.* BOSTON & MAINE RAILROAD.

The people using Wellington station complain that an express train to Boston runs rapidly by that station at the time when the 5.25 P.M. train from Boston is delivering its passengers, thus putting them in great peril. No law forbids this practice, and the Legislature, when

* The floor would be practically water-tight, and water could be taken down through scuppers and discharged through pipes laid between the floors, so as not to communicate sound.

a bill prohibiting it on all railroads was proposed, refused to enact such a law. But the common law, which requires due regard for the life and the safety of passengers, would seem to forbid the practice of running a train at full speed by a station where a train is receiving or discharging passengers. The rules of the Boston & Maine Railroad certainly forbid this, and any infringement of the rule ought to be reported at once to the manager of the road, so that the charge may be investigated while it is capable of being proved or disproved.

There is in this matter the usual conflict of testimony as to the frequency of such occurrences. But the fact is of little consequence so far as this complaint is concerned; for, if the passengers of the train in question will leave the train on the proper side, — *i. e.*, on the side of the platform, — they will always be safe from the express train. Danger is incurred by their taking the “short cut” across the tracks on the left hand of their train. To this the petitioners reply that the platform is only about sixty feet long, covering only two cars out of the six of which the train is generally composed, and in any one or more of which they may be; and it is added that the descent into the ditch beyond the platform is not only inconvenient, but dangerous, especially as it is not well lighted. This seems to be true, and the remedy is to lengthen the platform materially, and this extension is called for by the growth of the community near this section. We recommend the prompt extension of the platform, and that it be always lighted when light is needed. In addition to this, we refer to our recommendation given February 9. on a Malden complaint, that the directors consider the expediency of placing gates on their cars, and we now recommend that this be done as soon as possible, and that the gate on the side next to the opposite track be closed and locked. The excellent working of this system on the Boston & Albany Railroad answers all real objections to it, except the objection of expense. That objection is not worthy of consideration when the great increase of security is considered. In case of accident, arising from a want of this precaution, especially of accident to a stranger on the road, it might well be held that the injury was due to defective construction or equipment. It is possible that some passenger, at some station, if not at this station, may object to this because of the loss of time which he will suffer; for there is no right more prized than the supposed right of a traveller to risk his life in order to save a fraction of a minute; but such objections should be disregarded. It is often the moral duty of railroad managers to protect the public against the consequences of their own recklessness.

By the Board,

THOMAS RUSSELL, *Chairman.*

[I.]

REPORT ON THE MEIGS ELEVATED RAILWAY.

To the Board of Railroad Commissioners of the State of Massachusetts.

GENTLEMEN: — I had the honor to receive from you, on the 27th of October last, an appointment as engineer under the provisions of sect. 4, chap. 87 of the Acts of 1884, for the purpose of “examining the safety and strength of the structure of the Meigs Elevated Railway, so called, in Cambridge, and the rolling stock and motive power used thereon, and of approving or disapproving the same.”

In pursuance of this appointment, I have since devoted a very considerable portion of my time and attention to the required examination, and beg leave now to submit this, my report: —

The experimental section of Meigs Elevated Railway, which has been constructed at East Cambridge, is located on grounds formerly occupied by the Bay State Glass Company, and extends over Bridge Street to grounds of J. P. Squire & Co.

The structure has been erected wholly on made land, upon what was once the bed of Miller's River, and the mud underneath this made land is soft and deep. A rod of round iron, five-eighths of an inch in diameter, was easily forced down near the structure, by one man, in my presence, its entire length, twelve feet, without striking hard bottom.

The difficulty of building a secure single-post structure on this foundation has, of course, been much greater than it would have been on ordinary solid land.

In addition to this natural difficulty, Captain Meigs has purposely introduced artificial obstacles in his track, for the purpose of showing that he can run his trains around curves of less radius, and on grades of greater elevation, than are now practicable on ordinary steam motor railways, and can safely pass horizontal or vertical angles in the track of very considerable deflection. One of his curves makes an entire semi-circle, with a fifty-foot radius, on a grade of 120 feet to

the mile, and another turns nearly a quarter-circle, with a radius of fifty feet, on a grade of 345 feet to the mile.

The construction of the track is simple, and the question of its strength and safety is easily determined.

The entire structure consists of a single line of girders supported on a single line of posts; the two rails on which the bearing wheels supporting the load run, being placed on the upper outside corners of the lower boom of the girder, and the two rails that resist the pressure of the horizontal driving and guiding wheels, being placed on the outer sides of the upper boom of the girder.

The problems to be solved are, first, as to the strength of girder for sustaining a vertical load represented by the fixed weight of the girder and the moving weight of the train passing over it, and for resisting the horizontal strains and twists that may come either from the grip of the driving wheels, or the momentum of the train, or the action of wind; and second, as to the strength of the posts for sustaining the weight of girders and trains, and their stability and power of resistance against side pressure, caused by momentum or wind blowing upon the side of the train.

The railway company has submitted to my examination extensive and thorough computations, made by engineers in their employ, to show the force of these various strains, and the amount and form and quality of material required in the girders and posts, to safely resist and bear the loads and strains to which they are or may be subjected.

These computations show that the structure, as built, is, theoretically, of ample strength and stiffness, under all circumstances, to safely carry the train; and the numerous trips that I have myself made over it, with the locomotive and cars, practically verify these theoretical calculations.

But for the purpose of more tangible verification, I caused one of the longer girders to be loaded, in my presence, with a known weight, of nearly double the amount that could be brought upon it by the train, and noted myself the results by gauges arranged to show the deflection. The girder experimented upon is about forty-six feet long, and its lower boom is about eighteen feet above the surface of the ground.

Two large iron cylinders (rendering tanks), laid on cross timbers, were suspended under the exact middle of the girder by means of a heavy chain passing over the upper boom. The tanks were then filled with water, making an aggregate weight of water, tanks, chain and timber of 60,187 pounds, or about thirty net tons, equal to a distributed weight of sixty tons upon the girder, — a load greatly in excess of any that could ever be put upon it by the train. The de-

pression of the girder at its centre under this load was seven-sixteenths of an inch; and on removing the load the girder sprang back to its original position.

To test practically the power of the girder to resist lateral strains arising from pressure of wind and unbalanced loads computations have been made, based upon the force of a hurricane blowing 110 miles an hour, squarely against the side of the train, when the load is out of balance by passengers being at same time all on the leeward side of the car. And the side pressure on a girder, arising from these extreme conditions, is computed to be equal to about $4\frac{42}{100}$ tons. By means of a cable attached to the centre of a girder and passing horizontally over a loose pulley in the top of a shear, and suspending vertically a platform loaded with pig iron, I applied a force of $5\frac{29}{100}$ tons, to pull the girder sideways; being an excess of 20 per cent. over the computed extreme force of combined hurricane and unbalanced load. The side deflection of the girder at its middle, caused by this pressure of $5\frac{29}{100}$ tons, was three-eighths of an inch. This pressure caused the posts supporting the girder under test to bend at their tops one-half inch. On removing the weight the girder and posts sprang back to their original positions.

As the iron posts are of good design and well built, and securely fixed in place by foundations of timber and concrete, and have stood the pressure and strain of the train passing over them at frequent intervals for some months, I consider them satisfactory, and that no further test of their strength is necessary. The method of filling them with concrete, so arranged as to mainly take the weight, instead of leaving it to be supported by the iron shell, is especially commendable.

The wooden posts now in use on the low part of the structure answer very well for experimental purposes; but in a line intended for city traffic, I should advise that iron posts, filled with concrete, be adopted in all cases.

The structure of this experimental piece of railway, as now submitted to my examination, is, in my opinion, safe, and sufficiently strong, except in the plate angle iron rails on the lower boom of the girder, which have proved too light, and are about to be replaced with heavier ones.

It contains, however, objectionable curves and grades and angles, purposely placed there for extreme tests, to show what obstacles may be overcome, if necessity compels them to be encountered, and to find out what changes may be desirable in the proportions of the machinery. In my opinion, these extreme features should be eliminated, and, wherever possible, kept out from any line intended for business purposes.

The motive power and rolling stock submitted to my examination

consists of a locomotive, weighing about thirty tons; a tender, weighing about fourteen tons; and a passenger car, weighing about seventeen tons; making up a train of about sixty-one tons aggregate weight when empty.

Excepting the distinctive running gear, or trucks, of this railway system, the general features of the motive power and rolling stock correspond to, or are supposed improvements upon, the locomotives and cars of ordinary steam railways.

A cylindrical shape has been adopted for all the equipment, for which shape peculiar advantages are claimed as to safety, convenience and economy, and particularly as to offering less resistant surface to the wind.

The car is more elegant and commodious internally than ordinary cars, and being largely built of metal, instead of wood, is safer as regards fire, or as regards splinters in case of accident. The turntable arrangement of the trucks also seems stronger and safer than the trucks now in common use.

The leading features of the system centre in the trucks. They are constructed to straddle the girder, so that if all the bearing wheels were knocked off, the fall of the truck would not be over two or three inches on to the top boom of the girder, on which it would slide or rest. The wheels that bear the weight, instead of being placed in the ordinary upright position, are fixed at an angle of about forty-five degrees from the vertical plane; the bearing face of the wheels being grooved to fit down upon the angle iron supporting rail on the upper corners of the lower boom of the track girder, so as to bear both downward and inward on the rail. Each wheel has its own independent axle securely fixed in the iron jaw of the truck at right angles to the plane of the wheel. By this arrangement, the axle strains and the slipping of wheels on curves, so troublesome in wheels and axles of the ordinary construction, is wholly avoided; and it becomes possible to use sharper curves in the track than have ever before been practicable. Each truck has also two horizontal guide wheels, bearing against the rails on the sides of the upper boom of the track girder, to prevent the truck from swaying.

As the sustaining rails of the track on the lower boom of the girder are but twenty-two and one-half inches gauge, and the wheels stand sloping outward from these rails on an angle of about forty-five degrees, the first appearance of the rolling stock to a casual observer is one of extreme instability. But upon investigation and practical test this appearance is found to be deceptive. Careful mathematical and mechanical analysis of the arrangement of the wheels and axles shows the plan to be theoretically correct, and that, as a matter of fact, this arrangement of trucks, upon properly constructed girders, is

more stable and more safe than the trucks of ordinary rolling stock upon the ordinary railroad tracks.

For the purpose of testing the safety of these trucks in the event of accident, I caused one wheel to be removed from a truck under the car, so that the car would be in the condition of losing a wheel by breakage while in motion. The train was then run over the track with one wheel gone. There was no perceptible tipping of the truck on account of the absence of this wheel, and no apparent tendency to derailment. The absence of the wheel would not be noticeable to passengers in the car.

I also caused a section of the supporting rail and timber of one side of a lower boom to be cut away and removed, leaving an open gap of about six feet in the track. The car was then pushed over this gap, and, of course, became derailed; but it only dropped about two inches, and slid along on the upper boom as securely as if on its wheels. The centre of gravity being but little above the boom on which the car rested, the side wheels and truck jaws held the car effectually in horizontal position with very little strain. Apparently a derailed car, on this system, could not tip over; which cannot be said of ordinary railroad cars on the ordinary railroad tracks.

The locomotive has some minor novelties of construction besides the truck arrangement above alluded to, not necessary here to describe; but its main features are, the horizontal driving wheels which pull the train by side pressure on the rails of the upper boom of the girder, and the hydraulic attachment by which the pressure or adhesion of these driving wheels upon the rails is created, maintained and regulated at will by the engine-driver.

This motor has accomplished some remarkable feats. It draws itself and the attached train with apparent ease and at great speed around sharper curves and up heavier grades than the ordinary locomotive can pass. But being the first of the kind ever built of full size, and having been from the outset put at work on a track purposely planned to bring out in this experimental stage any existing weakness of design (through trial on unusual grades and curves and angles, requiring machinery of great perfection and power to overcome these extraordinary obstacles), it has, as might be expected, proved weak in some of its minor proportions, and there has been more or less breakage in the strained parts. All the defects thus far developed seem, however, to be susceptible of easy remedy, and no doubt, in future construction, the proportions of the parts will be greatly improved.

With so radical a departure from the ordinary mode of applying locomotive power, it is only to be expected that perfect proportions will develop slowly and out of the results of extended use or prac-

tical experiments. This is but the usual rule applying to all inventions.

The result of my investigations may be summed up as follows : —

The experimental section of the Meigs Elevated Railway now in use at East Cambridge is, in my opinion, abundantly strong for its intended use as an elevated railway track, and is safe for the passage of its equipment.

The rolling stock and motive power used thereon is also strong and safe for its intended use, no breakage having occurred, or being likely to occur, that could imperil personal safety either in or out of the cars.

A line of railway properly constructed on this principle for passenger or freight traffic, and equipped with such rolling stock and motive power, on this principle, as the Meigs Company is now prepared to perfect and build, would, in my opinion, be at least as strong and safe for any kind of traffic as the ordinary surface or elevated steam railways now in common use.

In view, however, of the imperative necessity for the best class of design and construction in everything appertaining to an elevated railway, I think it would be wise for the State of Massachusetts, through its Board of Railroad Commissioners, or otherwise, to regulate the strength and design of all materials used in construction, and the weight and design of equipment to be run, etc., as is done by New York through its "Rapid Transit Commission" for elevated railroads in that State.

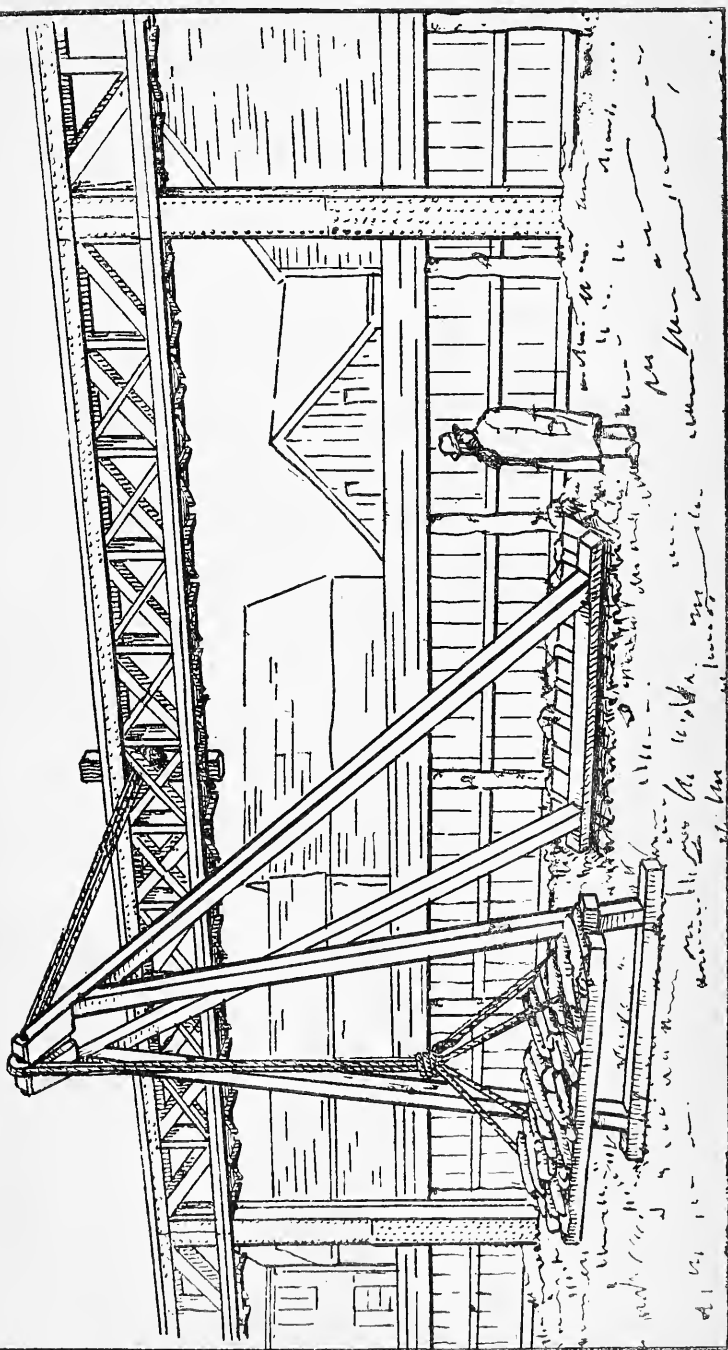
I attach to this report some sketches, kindly furnished by Captain Meigs, showing a perspective and a sectional view of his track and equipment, and the methods used by me for applying the weight and pressure tests to the girders and posts.

Respectfully, your obedient servant,

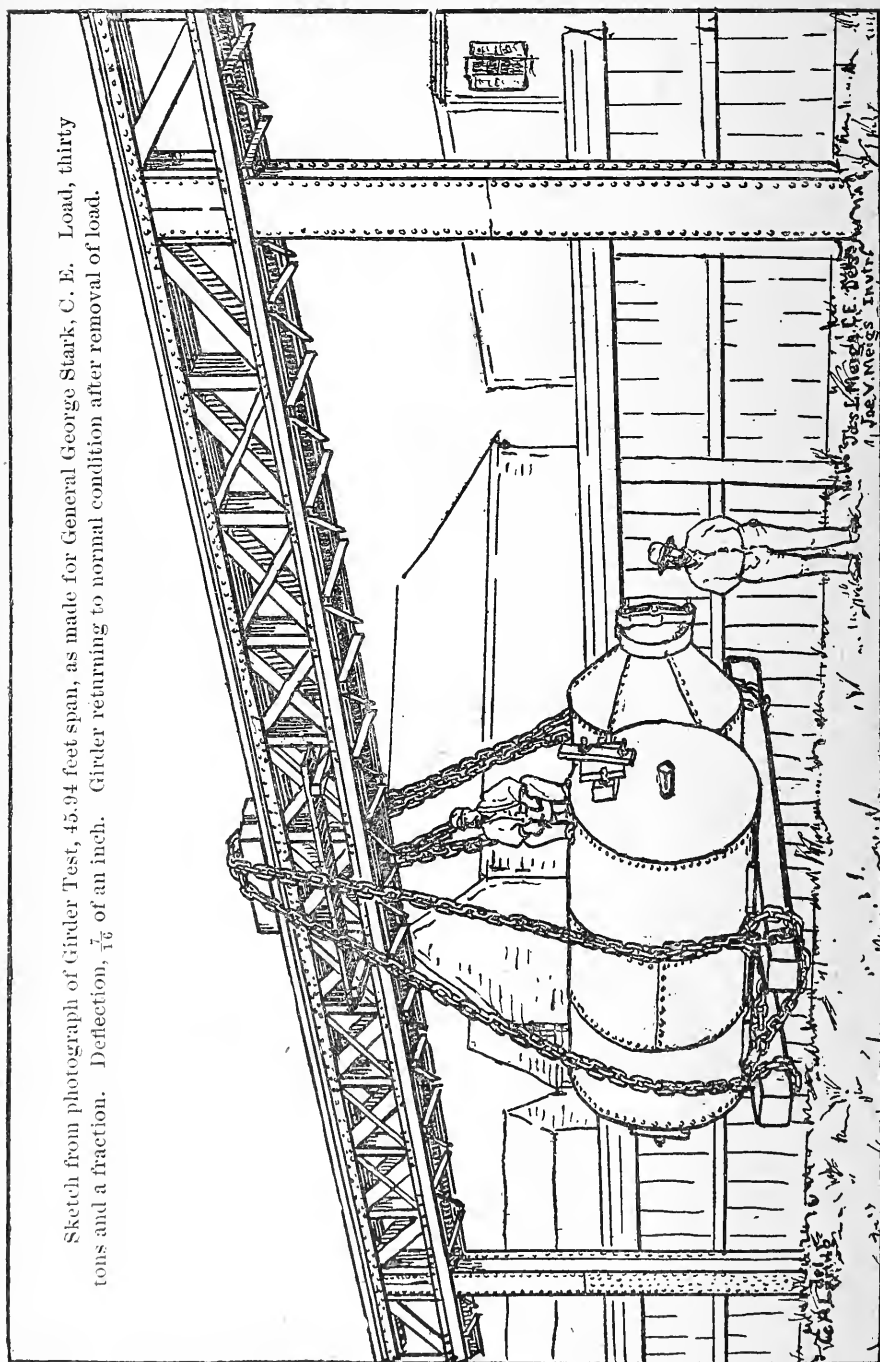
GEORGE STARK,
Civil Engineer.

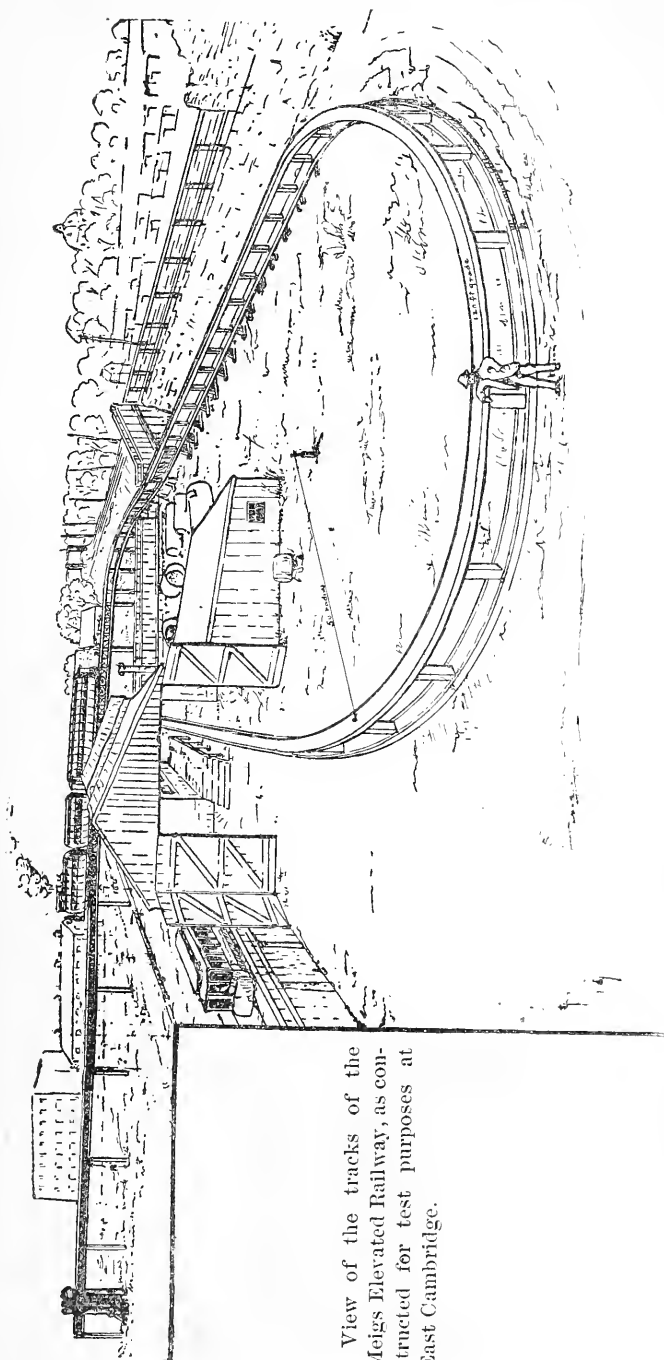
DEC. 23, 1886.

Sketch of photograph of Girder, 45.94 feet span, as made for General Stark. The same as if a wind were blowing at 33 lbs. per square foot against the walls of the car. The girder deflected $\frac{3}{8}$ of an inch; posts deflected $\frac{1}{2}$ inch: returning upon removal of load to normal position. This would be a wind effect of a hurricane blowing 110 miles an hour

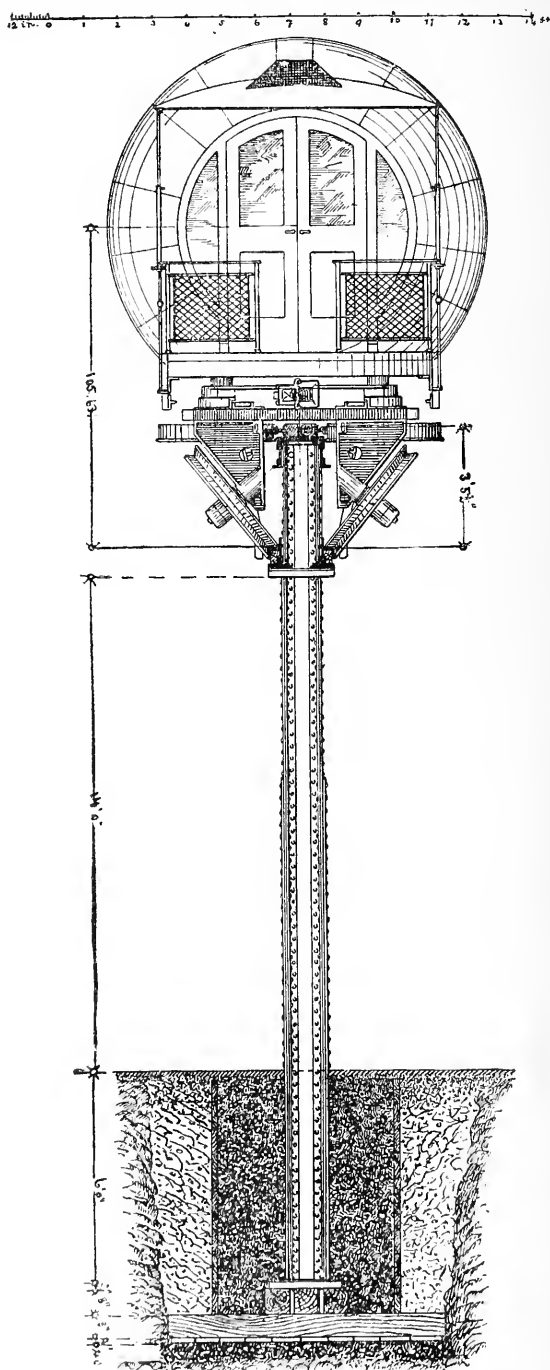


Sketch from photograph of Girder Test, 45.94 feet span, as made for General George Stark, C. E. Load, thirty tons and a fraction. Deflection, $\frac{1}{16}$ of an inch. Girder returning to normal condition after removal of load.





View of the tracks of the
Meigs Elevated Railway, as con-
structed for test purposes at
East Cambridge.



The above cut is an end representation of the car upon the track, — its trucks, the post, and its setting.

[J.]

OFFICE OF MARTIN ANTI-FIRE CAR-HEATING CO.,
DUNKIRK, N. Y., Jan. 3, 1887.

Judge RUSSELL, *Chairman of Board Railroad Commissioners, Boston, Mass.*

DEAR SIR:—In describing our system and its work, permit me to state that we put a dry pipe in the steam dome of the locomotive, connecting it to a valve in the cab; near that valve we put a reducing-valve, automatic in action,—with it we reduce the steam to any pressure desired; from said reducing-valve we run a pipe through the floor of the cab and attach to it our metallic couplings. At the front of tender and under it we fasten a joint, then run a pipe from it to another joint at furthest end of tender, through which we transmit the steam for the train. That pipe is carefully covered to avoid condensation.

We run a main pipe under each car. At the centre of car we take the steam in on each side of the aisle, under the seat; there we put a valve, so as to admit or close out the steam. After the steam once enters the car no water from condensation can get to the supply pipe, as each car drips its water away as soon as formed.

Thus we can shut off any car on the train without affecting any other car. Should they have a car on the train sealed, or not in use, we simply use its main pipe to transmit the steam to cars behind it. There is no water in pipe to freeze, as it is discharged as soon as formed; and a train can run all day without attention, other than controlling the temperature by opening, closing or cutting down close the two valves inside the car.

When a train goes out of service, all there is to do is simply to uncouple between cars, which can be done fully as quick as the air-brake can be uncoupled; then open a small valve in the end of trap. (This is not necessary, but we put it there as a matter of caution, so as to give free vent to the air when steam is put in the train.)

Of course the time for heating up train depends upon the length of the train. It takes but a very few minutes on five cars to put steam through them,—from five to ten minutes. After once through, in

zero weather I believe thirty minutes plenty of time to make the train comfortable.

However, the train on Boston & Albany is heated in Boston in about twenty minutes; and it is always comfortable, with a splendid atmosphere, because there are no gases to escape, and a free ventilation is maintained, with the heat evenly distributed.

We have yet to find an engineer who claims to be able to detect the loss of steam after pipes are once hot, and that is done when engine is standing still. In depots where they use steam for heating purposes they can attach cars on track in depot to steam plant, and warm them before the engine is out, if desired. On the Cleveland, Columbus, Cincinnati & Indianapolis Railroad they have not had to pay out any money for repairs, though they have run one train two years and two other trains one year. It is generally admitted by those who use it, that for economy, efficiency and safety it surpasses any system known. Against those three things, of course, roads must put the fact that they must make some minor changes in operating, such as heating cars before the engine comes, or set the engine out long enough before, to heat the train. When once heated, a train will run from thirty minutes to one hour with steam cut off, — the pipes being hot, — without the passengers experiencing any inconvenience. We believe we can heat from eight to ten cars from an engine without any material damage to its motive power, — perhaps more; I do not know.

I believe there is no reasonable limit in ability to heat if steam is furnished. You understand high steam, cut down to a pressure of five or six pounds, has many more degrees of heat in it than five pounds of low steam; therefore it heats more and lasts longer than low steam, thus requiring less to do the work. I can regulate it in each car so that every car in the train will have a uniform pressure and temperature.

It is now in successful operation on the Dunkirk, Allegheny Valley & Pittsburgh R.R., Boston & Albany Railroad, and we are now putting it on Long Island Railroad and Chicago, Milwaukee & St. Paul Railroad.

Last, but to me not least, we have never had to take it off a train or car, once put on. Every railroad patronizing us has called for more.

I think of nothing more now, unless it is that our business is growing, and we anticipate a successful trade during this next year.

Any particular questions you may think of and desire answered, I shall be pleased to do, if in my power.

Yours very respectfully,

WM. MARTIN,

President.

[K.]

CIRCULARS.

COMMONWEALTH OF MASSACHUSETTS,
BOARD OF RAILROAD COMMISSIONERS,
No. 20 BEACON STREET,
BOSTON, April 12, 1886.

*To the General Managers and Superintendents of the several Railroads in
Massachusetts :*

Your attention is called to the law providing for the testing of locomotive boilers, Acts of 1882, chapter 73, and to the revised regulations adopted and published by the Board under that law, and herewith communicated to you.

You are requested to report, at your earliest convenience, the record of the tests made during the year preceding this date, and hereafter to report, as provided in the regulation numbered 5, to which your special attention is called.

Per order of the Board,

WM. A. CRAFTS,
Clerk.

[ACTS OF 1882, CHAP. 73.]

[AN ACT to Provide for the Testing of Locomotive Boilers]

Be it enacted, etc., as follows :

SECTION 1. The board of railroad commissioners shall, as soon as may be, adopt, publish and communicate, to every corporation or person operating a railroad, or any portion of a railroad, in this Commonwealth, regulations for testing the boilers of locomotives.

SECT. 2. After three months from the publication of said regulations, any corporation or person using on a railroad in this Commonwealth a locomotive the boiler of which has not been tested as provided by said

regulations, shall be liable to a penalty of twenty dollars for every day of such use, to be recovered for the use of the Commonwealth by fine imposed on complaint before any court or magistrate of competent jurisdiction.

SECT. 3. Said board may from time to time revise said regulations, and when such revision has been communicated to any corporation or person operating a railroad or portion of a railroad in this Commonwealth, it shall have the same effect as to such person or corporation as if originally adopted by said board.

SECT. 4. Nothing in this act shall be construed to authorize the appointment by the board of any person to test locomotive boilers. All the testing of such boilers under the regulations of said board shall, when possible, be done by the master mechanic of the corporation, firm or person constructing or repairing such boilers, or using them on a railroad in this Commonwealth. [*Approved March 16, 1882.*]

REVISED REGULATIONS FOR THE INSPECTION AND TEST OF LOCOMOTIVE BOILERS.

[Adopted and published by the Board of Railroad Commissioners under the provisions of chapter 73 of the Acts of 1882.]

1. All boilers for locomotives before going into service must be subjected to a hydraulic pressure of 150 pounds per square inch.

2. The water must be heated to near the boiling point.

3. This test must be repeated at least once a year.

4. The superintendent of motive power, master mechanic, or other proper agent of the company, will attend in person. He will remain outside while an assistant will examine the fire-box from the inside.

5. A record of all tests will be made, giving dates and anything worthy of mention, and reported to the Board, annually, between the first of January and the first of April.

6. Special examinations of the stay-bolts of locomotives in service should be made not less frequently than once in three months, and a record thereof, with dates of examination, included in the annual report of tests.

7. When these examinations are made, all the water must be drawn from the boiler, so that the vibration of the sheet may indicate any unsoundness of the stay-bolt when it is struck with the hammer.

The Board urgently recommends, in addition to these regulations, that the four upper rows of stay-bolts shall be drilled from the outside three-fourths of an inch in depth and three-sixteenths of an inch in diameter.

WM. A. CRAFTS,

Clerk.

Boston, April 10, 1886.

[Blanks for reports of boiler tests may be had at the office of the Board, and will be forwarded on application.]

COMMONWEALTH OF MASSACHUSETTS,
BOARD OF RAILROAD COMMISSIONERS.

Attention is called to chapter 120 of the Acts of 1886, entitled
“An Act for the Protection of Railroad Employees.”

This act provides that every railroad corporation operating a railroad, or any part of a railroad, in this State, shall, before the first of next January, adjust, fill or block its frogs, switches and guard-rails, so as to prevent the feet of employees from being caught therein.

The general delay or neglect to act in this matter would seem to show that railroad managers have forgotten that this work must be completed before the new year.

WM. A. CRAFTS,
Clerk.

To the Managers of the Railroads of Massachusetts.

COMMONWEALTH OF MASSACHUSETTS,
BOARD OF RAILROAD COMMISSIONERS,
No. 20 BEACON STREET.

RULES PRESCRIBED BY THE BOARD OF RAILROAD COMMISSIONERS, UNDER
SECTION 93, CHAPTER 112, PUBLIC STATUTES, IN REGARD TO RECORDS OF RAILROAD LOCATIONS, AND THE MANNER OF KEEPING THE SAME.

RULE 1. Location maps shall be made upon a scale of not less than four hundred feet to the inch, upon cloth-backed paper, and shall be firmly bound for record in books eighteen (18) inches from top to bottom, and thirty (30) inches from back to front.

RULE 2. Said maps shall show the courses of the tangents and the radii of the curves of the centre line of the railroad in question; the widths of land taken, specifying such width on each side of the centre line; also the courses of the division lines between the lots over which the location is made, and the distance between them on the centre line. Where but one track is laid, the position of such track with reference to the centre line shall also be shown, in order that the boundaries of land may hereafter be determined by measurements from the track as laid, if the same shall not have been changed. Where two tracks are laid, it may be presumed that the centre line is midway between them. NOTE.—The *courses* called for above may be either *magnetic* or *true*, but the maps and descriptions must specify which are given.

RULE 3. The description in writing must in all cases correspond with the map, and the two taken together must have the substantial certainty and precision of a deed. (2 Gray, 580.)

RULE 4. The location shall be certified by the directors of the corporation, or by the president, if authorized by a vote of said directors.

RULE 5. The location, when deposited with the clerk of the county commissioners, shall be kept for preservation and convenient reference in the office of said clerk, in a cabinet used exclusively for that purpose, and furnished with shelves sufficient to allow at least one separate shelf for the maps of each corporation owning a railroad within the county.

RULE 6. A book shall be kept in the office of each clerk, in which shall be recorded the name of every location, the time when it was filed, and the shelf where it is deposited.

RULE 7. No location, after it has once been filed, shall be taken from the office of the clerk for any purpose except upon the order of a court or other proper authority.

Per order,

WM. A. CRAFTS,
Clerk.

NOVEMBER, 1886.

[L.]

EXPENSES OF OFFICE.

| | |
|---|------------|
| Rent of office, | \$2,500 00 |
| Messenger and care of office, | 500 00 |
| Experts and other agents, | 285 70 |
| Printing blanks and circulars, and binding, | 251 68 |
| Witness fees and expenses of hearings, | 156 17 |
| Postage, telegrams and express, | 129 16 |
| Stationery and Directory, | 103 31 |
| Railroad publications and newspapers, | 66 75 |
| Copying reports, | 37 40 |
| Ice, gas and wood, | 27 05 |
| Watering street, | 15 00 |
| Sundry incidentals, | 34 10 |
| | <hr/> |
| | \$4,106 32 |

BOARD OF RAILROAD COMMISSIONERS.

| | |
|---|-------------------------|
| THOMAS RUSSELL, Boston, <i>Chairman</i> , | Term expires July, 1888 |
| EDWARD W. KINSLEY, Boston, | " " July, 1887 |
| EVERETT A. STEVENS, Boston, | " " July, 1889 |

Clerk — WILLIAM A. CRAFTS, Boston.

Accountant — FRED E. JONES, Boston.



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RETURNS.

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| Per cent., | 43 | 162 |
| Balance for the Year, | 44 | 162 |
| Surplus last Year, | 45 | 162 |
| Surplus Sept. 30, 1886, | 46 | 162 |

EQUIPMENT.

| | | |
|---------------------------|----|-----|
| Cars, | 47 | 164 |
| Other Vehicles, | 48 | 164 |
| Horses, | 49 | 164 |
| Harnesses, | 50 | 164 |

LENGTH OF ROAD.

| | | |
|-------------------------|----|-----|
| Main Line, | 51 | 164 |
| Sidings, | 52 | 164 |
| Total Length, | 53 | 164 |

MILEAGE, ETC.

| | | |
|--|----|-----|
| Miles run, | 54 | 166 |
| Passengers carried, | 55 | 166 |
| Round trips, | 56 | 166 |
| Average Number of Passengers per Round Trip, | 57 | 166 |
| Persons employed, | 58 | 166 |

ACCIDENTS.

| | | |
|--------------------|----|-----|
| Fatal, | 59 | 166 |
| Injured, | 60 | 166 |

PER MILE OF ROAD OWNED.

| | Column | Page |
|----------------------------------|--------|------|
| Capital Stock paid in, | 61 | 168 |
| Net Debt, | 62 | 168 |
| Cost of Construction, | 63 | 168 |

PER MILE OF ROAD OPERATED.

| | | |
|--|----|-----|
| Cost of Equipment, | 64 | 168 |
| Repairs of Road-Bed and Track, | 65 | 168 |
| Repairs of Equipment, | 66 | 168 |
| Renewals of Horses, | 67 | 168 |

GROSS INCOME.

| | | |
|----------------------------------|----|-----|
| Per Mile operated, | 68 | 170 |
| Per Round Trip, | 69 | 170 |
| Per Mile run, | 70 | 170 |
| Per Passenger carried, | 71 | 170 |

EXPENSES.

| | | |
|----------------------------------|----|-----|
| Per Mile operated, | 72 | 170 |
| Per Round Trip, | 73 | 170 |
| Per Mile run, | 74 | 172 |
| Per Passenger carried, | 75 | 172 |

NET INCOME.

| | | |
|----------------------------------|----|-----|
| Per Mile operated, | 76 | 172 |
| Per Round Trip, | 77 | 172 |
| Per Mile run, | 78 | 172 |
| Per Passenger carried, | 79 | 172 |

STEAM RAILROADS.

LENGTH OF ROAD AND BRANCHES.

| | | |
|--|---|-----|
| Main Line, | 1 | 176 |
| Main Line in Massachusetts, | 2 | 176 |
| Double Track in Massachusetts, | 3 | 176 |
| Double track out of Massachusetts, | 4 | 176 |
| Sidings in Massachusetts, | 5 | 176 |
| Sidings out of Massachusetts, | 6 | 176 |
| Total Length computed as Single Track, | 7 | 176 |

REPORTS.

| | | |
|--------------------------------|----|-----|
| Attleborough Branch, | 35 | 207 |
| Berkshire, | 36 | 207 |
| Boston & Albany, | 8 | 184 |

REPORTS.

| | Column | Page |
|--|--------|------|
| Boston & Lowell, | 10 | 184 |
| Boston & Maine, | 11 | 184 |
| Boston & Providence, | 12 | 188 |
| Boston, Revere Beach & Lynn, | 30 | 204 |
| Boston, Winthrop & Shore, | 15 | 188 |
| Central Massachusetts, | 59 | 212 |
| Chelsea Beach, | 60 | 212 |
| Cheshire, | 16 | 192 |
| Connecticut River, | 17 | 192 |
| Danvers, | 61 | 212 |
| Dorchester & Milton, | 62 | 212 |
| Eastern, | 37 | 207 |
| Fall River, | 38 | 207 |
| Fall River, Warren & Providence, | 18 | 192 |
| Fitchburg, | 9 | 184 |
| Grafton Centre, | 31 | 204 |
| Hanover Branch, | 19 | 192 |
| Holyoke & Westfield, | 39 | 207 |
| Horn Pond Branch, | 63 | 212 |
| Housatonic of Connecticut,* | 20 | 196 |
| Lancaster, | 64 | 213 |
| Lowell & Andover, | 40 | 208 |
| Martha's Vineyard, | 32 | 204 |
| Milford, Franklin & Providence, | 41 | 208 |
| Milford & Woonsocket, | 21 | 196 |
| Monadnock, | 42 | 208 |
| Nantasket Beach, | 22 | 196 |
| Nantucket, | 33 | 204 |
| Nashua & Lowell, | 43 | 208 |
| Nashua, Acton & Boston, | 44 | 209 |
| Newburyport, | 65 | 213 |
| Newburyport City, | 45 | 209 |
| New Haven & Northampton, | 23 | 196 |
| New London Northern, | 24 | 196 |
| New York & Boston Inland, | 66 | 213 |
| New York & New England, | 13 | 188 |
| New York, New Haven & Hartford, | 25 | 200 |
| North Brookfield, | 46 | 209 |
| Norwich & Worcester, | 26 | 200 |
| Ocean Terminal, | 67 | 213 |
| Old Colony, | 14 | 188 |
| Pittsfield & North Adams, | 47 | 209 |
| Providence & Worcester, | 27 | 200 |
| Providence, Webster & Springfield, | 49 | 210 |
| Rhode Island & Massachusetts, | 48 | 210 |
| Spencer, | 50 | 210 |

* Operating the Berkshire, Stockbridge & Pittsfield and W. Stockbridge Railroads.

REPORTS.

| | Column | Page |
|--|--------|------|
| Springfield & New London, | 51 | 210 |
| Stockbridge & Pittsfield, | 52 | 210 |
| Stony Brook, | 53 | 211 |
| Troy & Greenfield & Hoosac Tunnel,*. | 58 | 212 |
| Union Freight, | 28 | 200 |
| Vermont & Massachusetts, | 54 | 211 |
| Ware River, | 55 | 211 |
| West Amesbury Branch, | 56 | 211 |
| West Stockbridge, | 57 | 211 |
| Worcester, Nashua & Rochester, | 29 | 200 |
| Worcester & Shrewsbury, | 34 | 204 |

 TABULATED COMPARATIVE RESULTS.

STOCK, DEBT AND COST PER MILE OF ROAD OWNED.

| | | |
|--|----|-----|
| Stock paid in, | 68 | 216 |
| Net Debt, | 69 | 216 |
| Total Stock and Net Debt, | 70 | 216 |
| Construction, | 71 | 216 |
| Equipment, | 72 | 216 |
| Total Permanent Investments, | 73 | 216 |

EARNINGS AND EXPENSES PER MILE OF ROAD OPERATED.

| | | |
|--|----|-----|
| Total Transportation Earnings, | 74 | 217 |
| Operating Expenses, | 75 | 217 |
| Net Earnings, | 76 | 217 |

EARNINGS AND EXPENSES PER TOTAL REVENUE TRAIN MILE.

| | | |
|--|----|-----|
| Total Transportation Earnings, | 77 | 217 |
| Operating Expenses, | 78 | 217 |
| Net Earnings, | 79 | 217 |

EXPENSES PER TOTAL TRAIN MILE.

| | | |
|--|----|-----|
| Repairs of Road, | 80 | 218 |
| New Rails, | 81 | 218 |
| Repairs of Bridges, | 82 | 218 |
| Repairs of Locomotives, | 83 | 218 |
| Fuel, | 84 | 218 |
| Oil and Waste, | 85 | 218 |
| Repairs of Passenger, Baggage and Mail Cars, | 86 | 218 |
| Repairs of Freight Cars, | 87 | 218 |

* Makes special report to the Legislature.

REPAIRS.

| | Column. | Page. |
|--|---------|-------|
| Per Locomotive, | 88 | 219 |
| Per Passenger, Baggage and Mail Car, | 89 | 219 |
| Per Freight Car, | 90 | 219 |

AVERAGES, ETC.

| | | |
|---|----|-----|
| Per Passenger; Average Distance travelled, . . . | 91 | 219 |
| Per Ton of Freight; Average Distance carried, . . | 92 | 219 |
| Average Number of Passengers per Train Mile, . . | 93 | 219 |
| Average Number of Tons of Freight per Train Mile, . | 94 | 219 |

EARNINGS, EXPENSES, NET EARNINGS, ETC.

| | | |
|--|-----|-----|
| Passenger Earnings, | 95 | 220 |
| Freight Earnings, | 96 | 220 |
| Total Transportation Earnings, | 97 | 220 |
| Operating Expenses, | 98 | 220 |
| Net Earnings, | 99 | 220 |
| Per cent. Operating Expenses to Transportation Earnings, | 100 | 220 |

ABSTRACT OF STREET RAILWAY RETURNS.

| STREET RAILWAYS. | | CAPITAL STOCK, DEBT, ETC. | | | | | | |
|------------------|---|---------------------------|----------------------------|-----------------|-------------------|----------------|--------------------------|--------------|
| | | 1.—Capital Stock paid in. | 2.—Number of Stockholders. | 3.—Funded Debt. | 4.—Unfunded Debt. | 5.—Gross Debt. | 6.—Cash and Cash Assets. | 7.—Net Debt. |
| 1 | Acushnet, | \$111,600 00 | 58 | — | \$32,773 97 | \$32,773 97 | \$1,663 28 | \$28,110 69 |
| 2 | Albany Street Freight, | 50,000 00 | 8 | — | — | — | 720 85 | — |
| 3 | Arlington, | 13,600 00 | 24 | — | — | — | — | — |
| 4 | Brockton, | 150,000 00 | 77 | \$80,000 00 | 10,000 00 | 90,000 00 | 3,309 37 | 86,690 63 |
| 5 | Black Rocks & Salisbury B'h., | 9,000 00 | 6 | — | — | — | 2,074 43 | — |
| 6 | Boston & Chelsea, | 121,000 00 | 90 | — | — | — | — | — |
| 7 | Boston Consolidated, | 1,700,000 00 | 800 | 850,000 00 | 450,223 00 | 1,300,223 00 | 541,802 23 | 758,420 77 |
| 8 | Cambridge, | 1,600,000 00 | 738 | 600,000 00 | 45,560 28 | 645,560 28 | 50,961 02 | 594,599 26 |
| 9 | Charles River, | 350,000 00 | 131 | 150,000 00 | 2,728 57 | 152,728 57 | 51,759 34 | 100,969 23 |
| 10 | Citizens', | 100,000 00 | 8 | — | 47,506 56 | 47,506 56 | 11,043 82 | 86,462 74 |
| 11 | Fitchburg, | 60,000 00 | 19 | — | 4,152 79 | 4,152 79 | 2,106 64 | 2,046 15 |
| 12 | Globe, | 200,000 00 | 92 | — | 76,077 62 | 76,077 62 | 13,759 59 | 62,318 03 |
| 13 | Gloucester, | 59,400 00 | 13 | — | 23,000 00 | 23,000 00 | 3,446 44 | 19,553 56 |
| 14 | Haverhill & Groveland, | 32,000 00 | 29 | — | 113,500 00 | 113,500 00 | 3,281 16 | 110,218 84 |
| 15 | Highland, | 850,000 00 | 390 | 450,000 00 | 199,025 12 | 649,025 12 | 146,009 42 | 503,015 70 |
| 16 | Holyoke, | 25,000 00 | 46 | — | 14,000 00 | 14,000 00 | 1,387 69 | 12,612 31 |
| 17 | Hoosac Valley, | 50,000 00 | 9 | 50,000 00 | — | 50,000 00 | 6,475 69 | 43,524 31 |
| 18 | Lowell, | 100,000 00 | 102 | — | 6,072 00 | 6,072 00 | 20,979 34 | — |
| 19 | Lowell & Dracut, | 7,550 00 | 54 | — | — | — | 5,995 32 | — |
| 20 | Lynn & Boston, | 300,000 00 | 120 | 325,000 00 | 127,598 76 | 452,598 76 | 23,361 35 | 429,237 41 |
| 21 | Malden & Melrose, | 165,500 00 | 51 | — | — | — | — | — |
| 22 | Merrimack Valley, | 50,000 00 | 43 | — | — | — | 5,009 13 | — |
| 23 | Metropolitan, | 2,000,000 00 | 1,086 | 1,457,442 12 | 125,620 89 | 1,583,063 01 | 261,258 74 | 1,321,804 27 |
| 24 | Middlesex, | 850,000 00 | 486 | 400,000 00 | 236,713 44 | 636,713 44 | 319,995 30 | 316,718 14 |
| 25 | Naumkeag, | 150,000 00 | 49 | 300,800 00 | 17,657 81 | 318,457 81 | 87,332 95 | 231,124 86 |

| | | | | | | |
|----|--------------------------|----------------|-------|----------------|----------------|----------------|
| 26 | Natick & Cochrutuate, | 25,000 00 | 61 | 5,213 48 | 5,213 48 | 5,213 48 |
| 27 | Newton, | * | — | — | — | — |
| 28 | New Bedford & Fairhaven, | 135,000 00 | 134 | 31,671 61 | 2,077 18 | 29,594 43 |
| 29 | Newburyport & Amesbury, | 60,000 00 | 28 | 49,040 00 | 5,492 95 | 43,547 05 |
| 30 | Northampton, | 50,000 00 | 11 | 5,350 00 | 12 82 | 5,337 18 |
| 31 | North Woburn, | 59,025 00 | 46 | 11,598 65 | 19,028 82 | — |
| 32 | Onset, | 12,580 00 | 17 | — | 453 42 | — |
| 33 | Pittsfield, | 33,390 00 | 46 | 6,460 47 | 713 19 | 5,747 28 |
| 34 | Salem, | † | — | — | 94 69 | — |
| 35 | Salem & Danvers, | 100,000 00 | 75 | 31,822 60 | 4,987 94 | 26,834 66 |
| 36 | Somerville, | 153,000 00 | 119 | — | — | — |
| 37 | South Boston, | 750,000 00 | 468 | 64,500 00 | 113,319 07 | 151,180 93 |
| 38 | Springfield, | 150,000 00 | 63 | 39,389 87 | 15,364 01 | 23,825 86 |
| 39 | Stoneham, | 33,000 00 | 13 | — | 1,007 15 | — |
| 40 | Taunton, | 40,000 00 | 101 | 3,000 00 | 5,502 18 | — |
| 41 | Waltham & Newton, | 30,000 00 | 89 | 16,400 00 | 1,257 52 | 15,142 48 |
| 42 | Winnisimmet, | 50,000 00 | 44 | 114 00 | 237 35 | — |
| 43 | Worcester, | 40,000 00 | 28 | 50,454 56 | 5,836 56 | 84,618 00 |
| | Total,† | \$9,125,645 00 | 4,999 | \$4,097,242 12 | \$5,464,729 61 | \$4,188,416 38 |

* Chartered by special act, ch. 341 of 1886. Capital to be \$50,000, all of which has been subscribed in full, but none as yet paid in.

† The property and franchise of this company was sold to the Naumkeag Street Railway Co., June 1, 1886, and the companies have been consolidated.

‡ Not including Highland and Middlesex Companies.

ABSTRACT OF STREET RAILWAY RETURNS — Continued.

| STREET RAILWAYS. | | COST OF ROAD, EQUIPMENT, ETC. | | | | | | |
|------------------|--|-------------------------------|-----------------|---------------------------|-----------------------|------------------------------------|----------------------------------|--|
| | | 8. — Road. | 9. — Equipment. | 10. — Land and Buildings. | 11. — Other Property. | 12. — Total Permanent Investments. | 13. — Total Property and Assets. | |
| 1 | Acushnet, | \$71,713 47 | \$50,331 20 | \$19,269 52 | — | \$141,314 19 | \$145,977 47 | |
| 2 | Albany Street Freight, | 49,066 29 | — | — | — | 49,066 29 | 49,787 14 | |
| 3 | Arlington, | 13,600 00 | — | — | — | 13,600 00 | 13,600 00 | |
| 4 | Brookton, | 166,192 50 | 46,202 88 | 53,541 41 | — | 245,936 79 | 249,246 16 | |
| 5 | Black Rocks & Salisbury Beach, | 5,866 33 | 2,400 00 | 380 00 | — | 8,646 33 | 10,720 76 | |
| 6 | Boston & Chelsea, | 121,000 00 | — | — | — | 121,000 00 | 121,000 00 | |
| 7 | Boston Consolidated, | 1,034,190 77 | 681,184 32 | 932,227 32 | — | 2,647,602 41 | 3,189,404 64 | |
| 8 | Cambridge, | 1,104,887 31 | 518,920 14 | 614,229 70 | — | 2,238,037 15 | 2,288,998 17 | |
| 9 | Charles River, | 224,125 01 | 144,477 74 | 70,706 11 | \$1,351 60 | 440,660 46 | 492,419 80 | |
| 10 | Citizens', | 95,442 08 | 29,333 83 | 14,749 88 | — | 139,525 79 | 150,769 61 | |
| 11 | Fitchburg, | 49,602 27 | 11,324 10 | 4,285 58 | — | 65,211 95 | 67,318 59 | |
| 12 | Globe, | 189,242 31 | 53,900 00 | 39,093 87 | — | 282,236 18 | 295,995 77 | |
| 13 | Gloucester, | 36,910 84 | 28,565 90 | 15,975 06 | — | 81,451 80 | 84,898 24 | |
| 14 | Haverhill & Groveland, | 70,521 45 | 47,041 88 | 24,719 00 | 1,500 00 | 143,782 33 | 147,063 49 | |
| 15 | Highland, | 424,042 68 | 449,835 36 | 418,936 22 | 66,500 00 | 1,359,314 26 | 1,505,323 68 | |
| 16 | Holyoke, | 23,420 19 | 15,364 09 | 576 20 | — | 39,360 48 | 40,748 17 | |
| 17 | Hoosac Valley, | 73,960 31 | 15,464 00 | 4,100 00 | — | 93,524 31 | 100,000 00 | |
| 18 | Lowell, | 78,488 41 | 26,286 71 | 25,751 94 | — | 130,527 06 | 151,506 40 | |
| 19 | Lowell & Dracut, | 1,554 68 | — | — | — | 1,554 68 | 7,550 00 | |
| 20 | Lynn & Boston, | 447,381 66 | 185,094 79 | 137,840 69 | — | 770,317 14 | 793,078 49 | |
| 21 | Malden & Melrose, | 74,719 52 | — | — | — | 74,719 52 | 74,719 52 | |
| 22 | Merrimack Valley, | 20,000 00 | 8,000 00 | 30,000 00 | — | 58,000 00 | 63,009 13 | |
| 23 | Metropolitan, | 1,643,530 85 | 961,116 75 | 1,139,809 01 | 350,000 00 | 4,094,456 61 | 4,355,715 35 | |
| 24 | Middlesex, | 618,545 29 | 265,049 38 | 280,074 68 | — | 1,163,669 35 | 1,483,664 65 | |
| 25 | Naumkeag, | 247,387 17 | 115,677 34 | 52,097 55 | — | 415,162 06 | 502,495 01 | |

| | | | | | | | |
|----|------------------------------------|----------------|----------------|----------------|--------------|-----------------|-----------------|
| 26 | Natick & Cochituate, | 21,550 00 | 8,276 00 | 4,500 00 | — | 34,326 00 | 34,326 00 |
| 27 | Newton, | — | — | — | — | — | — |
| 28 | New Bedford & Fairhaven, | 111,525 08 | 49,899 53 | 39,289 04 | — | 200,713 65 | 202,790 83 |
| 29 | Newburyport & Amesbury, | 80,761 43 | 23,431 85 | 10,850 00 | — | 115,043 28 | 120,536 23 |
| 30 | Northampton, | 36,000 00 | 7,927 50 | 4,375 00 | — | 48,302 50 | 48,315 32 |
| 31 | North Woburn, | 51,311 93 | 8,327 66 | 8,435 65 | — | 68,075 24 | 87,104 06 |
| 32 | Onset, | 6,039 34 | 6,748 42 | 350 53 | — | 13,138 29 | 13,591 71 |
| 33 | Pittsfield, | 23,033 68 | 12,445 35 | 5,497 45 | — | 40,976 48 | 41,089 67 |
| 34 | Salem, | — | — | — | — | — | 94 69 |
| 35 | Salem & Danvers, | 61,260 41 | 43,406 22 | 24,090 65 | — | 128,757 28 | 133,745 22 |
| 36 | Somerville, | 153,000 00 | — | — | — | 153,000 00 | 153,000 00 |
| 37 | South Boston, | 302,738 14 | 308,646 04 | 349,755 94 | 10,000 00 | 971,140 12 | 1,084,459 19 |
| 38 | Springfield, | 103,159 40 | 46,573 06 | 77,953 13 | — | 227,635 59 | 243,249 60 |
| 39 | Stoneham, | 33,600 00 | 9,759 86 | 3,429 83 | 1,629 00 | 48,418 69 | 49,425 84 |
| 40 | Taunton, | 22,000 00 | 14,000 00 | 7,000 00 | — | 43,000 00 | 48,502 18 |
| 41 | Waltham & Newton, | 37,493 41 | 8,724 37 | 3,448 88 | — | 49,666 66 | 50,924 18 |
| 42 | Winnisimmet, | 50,000 00 | — | — | — | 50,000 00 | 50,237 35 |
| 43 | Worcester, | 104,680 88 | 47,818 95 | 42,959 73 | — | 195,459 56 | 201,296 12 |
| | Total,* | \$7,040,957 12 | \$3,536,670 48 | \$3,741,288 67 | \$364,480 60 | \$14,683,396 87 | \$15,959,710 10 |

* Not including Highland and Middlesex Companies.

ABSTRACT OF STREET RAILWAY RETURNS — Continued.

| STREET RAILWAYS. | | PROPERTY ACCOUNTS: ADDITIONS AND REDUCTIONS DURING THE YEAR. | | | | | |
|------------------|--|--|----------------|---------------------|----------------------|-----------------|--------------------|
| | | 14.—Construction. | 15.—Equipment. | 16.—Other Property. | 17.—Total Additions. | 18.—Reductions. | 19.—Net Additions. |
| 1 | Acushnet, | \$17,236 64 | \$17,825 85 | \$2,674 90 | \$37,737 39 | — | \$37,737 39 |
| 2 | Albany Street Freight, | — | — | — | — | — | — |
| 3 | Arlington, | — | — | — | — | — | — |
| 4 | Brockton, | 5,648 62 | 5,409 44 | 17,334 59 | 28,392 65 | — | 28,392 65 |
| 5 | Black Rocks & Salisbury Beach, | 560 99 | — | — | 560 99 | — | 560 99 |
| 6 | Black & Chelsea, | — | — | — | — | — | — |
| 7 | Boston Consolidated*, | — | 4,805 00 | 166,716 42 | 171,521 42 | 38,505 42 | 133,016 00 |
| 8 | Cambridge, | 2,843 52 | 25,430 68 | 245 50 | 28,519 70 | 5,460 00 | 23,059 70 |
| 9 | Charles River, | 4,858 31 | 8,096 66 | 137 94 | 13,092 94 | 6,461 50 | 6,631 44 |
| 10 | Citizens', | 95,442 08 | 29,333 83 | 14,749 88 | 139,525 79 | — | 139,525 79† |
| 11 | Fitchburg, | 49,602 27 | 11,324 10 | 4,285 58 | 65,211 95 | — | 65,211 95† |
| 12 | Globe, | 48,564 16 | 7,518 29 | 1,477 12 | 57,559 57 | 9,786 12 | 47,823 45 |
| 13 | Gloucester, | 36,910 84 | 28,565 90 | 15,975 06 | 81,451 80 | — | 81,451 80† |
| 14 | Haverhill & Groveland, | 48,948 82 | 38,170 52 | 17,783 93 | 104,903 27 | 4,511 27 | 100,392 00 |
| 15 | Highland,† | 15,051 90 | 16,784 48 | 561 95 | 32,398 33 | — | 32,398 33 |
| 16 | Holyoke, | 8,910 41 | 4,213 50 | 576 20 | 13,700 11 | — | 13,700 11 |
| 17 | Hoosac Valley, | 73,960 31 | 15,464 00 | 4,100 00 | 93,524 31 | — | 93,524 31† |
| 18 | Lowell, | 5,046 96 | 3,941 00 | — | 8,987 96 | 2,900 00 | 6,787 96 |
| 19 | Lowell & Dracut, | 1,554 68 | — | — | 1,554 68 | — | 1,554 68§ |
| 20 | Lynn & Boston, | 40,099 81 | 25,065 40 | 24,159 83 | 89,325 04 | 25 00 | 89,300 04 |
| 21 | Malden & Melrose, | — | — | — | — | — | — |
| 22 | Merrimack Valley, | — | — | — | — | — | — |
| 23 | Metropolitan, | 23,970 79 | 8,209 88 | 300,000 00 | 332,180 67 | 151,145 04 | 181,035 63 |
| 24 | Middlesex,† | 10,474 85 | 11,292 50 | 2,375 00 | 24,142 35 | 375 00 | 23,767 35 |
| 25 | Naumkeag, | 44,983 95 | 37,128 51 | 108,401 29 | 190,493 75 | — | 190,493 75 |

| | | | | | | | |
|----|------------------------------------|--------------|--------------|--------------|----------------|--------------|----------------|
| 26 | Natick & Cochituate, | - | 1,496 00 | 1,000 00 | 2,496 00 | 170 00 | 2,326 00 |
| 27 | Newton, | - | - | - | - | - | - |
| 28 | New Bedford & Fairhaven, | 14,906 79 | 6,276 69 | 6,924 14 | 28,157 62 | 90 00 | 28,017 62 |
| 29 | Newburyport & Amesbury, | - | 23,431 85 | - | 23,431 85 | - | 23,431 85 |
| 30 | Northampton, | - | 1,096 90 | 275 00 | 1,371 90 | 10,150 00 | 8,778 10d |
| 31 | North Woburn, | 28,993 18 | 6,115 91 | 7,193 00 | 42,302 09 | 258 00 | 42,044 09 |
| 32 | Onset, | 6,039 34 | 6,748 42 | 350 53 | 13,138 29 | - | 13,138 29† |
| 33 | Pittsfield, | 23,033 68 | 12,445 35 | 5,497 45 | 40,976 48 | - | 40,976 48† |
| 34 | Salem, | - | - | - | - | - | - |
| 35 | Salem & Danvers, | 1,651 84 | 11,345 82 | 10,200 13 | 23,197 79 | 800 00 | 22,397 79 |
| 36 | Somerville, | - | - | - | - | - | - |
| 37 | South Boston, | - | 18,831 80 | - | 18,831 80 | - | 18,831 80 |
| 38 | Springfield, | 10,869 26 | 7,054 98 | 17,756 79 | 35,681 03 | - | 35,681 03 |
| 39 | Stoneham, | - | 1,124 36 | - | 1,124 36 | - | 1,124 36 |
| 40 | Taunton, | - | - | - | - | 3,875 00 | 3,875 00d |
| 41 | Waltham & Newton, | - | 980 00 | - | 980 00 | - | 980 00 |
| 42 | Winnisimmet, | - | - | - | - | - | - |
| 43 | Worcester, | 22,295 94 | 12,278 67 | 4,872 35 | 39,446 96 | - | 39,446 96 |
| | Total, | \$643,039 97 | \$407,806 29 | \$735,624 58 | \$1,786,470 84 | \$233,762 35 | \$1,552,608 49 |

* For 41 days.

‡ Under construction.

† Built during the year.
d Reduction.

‡ From Oct. 1, 1885, to Aug. 20, 1886.

ABSTRACT OF STREET RAILWAY RETURNS — Continued.

| STREET RAILWAYS. | | REVENUE FOR THE YEAR. | | | | | |
|------------------|--|-----------------------|--------------|-------------------------|------------------------|----------------------|---------------------|
| | | 20. — Passengers. | 21. — Rents. | 22. — Mail and Express. | 23. — Sales of Manure. | 24. — Other Sources. | 25. — Total Income. |
| 1 | Acushnet, | \$40,660 68 | - | - | \$890 40 | \$210 00 | \$41,761 08 |
| 2 | Albany Street Freight, | * | - | - | - | 612 00 | 612 00 |
| 3 | Arlington, | † | \$816 00 | - | - | - | 816 00 |
| 4 | Brockton, | 64,763 07 | - | - | 874 19 | 1,323 60 | 66,960 86 |
| 5 | Black Rocks & Salisbury Beach, | 5,937 54 | - | - | - | - | 5,937 94 |
| 6 | Boston & Chelsea, | † | 7,260 00 | - | - | - | 7,260 00 |
| 7 | Boston Consolidated, \$. | 126,848 27 | 1,463 40 | - | 1,102 19 | 143 75 | 129,557 61 |
| 8 | Cambridge, | 682,369 00 | 10,110 77 | - | 6,978 24 | 2,400 00 | 701,858 01 |
| 9 | Charles River, | 133,234 20 | - | - | 1,613 05 | 1,110 96 | 135,958 21 |
| 10 | Citizens', | 9,944 52 | - | - | - | - | 9,944 52 |
| 11 | Fitchburg, | 6,683 27 | - | - | 39 58 | - | 6,722 85 |
| 12 | Globe, | 103,206 66 | - | - | 1,022 88 | 260 00 | 104,489 54 |
| 13 | Gloucester, | 14,556 98 | - | - | 1 50 | 50 00 | 14,608 48 |
| 14 | Haverhill & Groveland, | 29,155 66 | - | - | 178 57 | 265 50 | 29,599 73 |
| 15 | Highland, **, | 518,689 32 | 1,961 26 | - | 2,025 21 | 44,149 77 | 566,825 56 |
| 16 | Holyoke, | 14,817 89 | - | - | 137 00 | 184 92 | 15,139 81 |
| 17 | Hoosac Valley, | †† | - | - | - | - | - |
| 18 | Lowell, | 80,722 31 | - | - | 575 00 | 729 98 | 82,027 29 |
| 19 | Lowell & Dracut, | †† | - | - | - | - | - |
| 20 | Lynn & Boston, | 414,322 92 | 858 96 | - | 2,975 70 | - | 418,157 58 |
| 21 | Malden & Melrose, | †† | - | - | - | - | - |
| 22 | Merrimack Valley, | 48,986 18 | - | - | 400 00 | 200 00 | 49,586 18 |
| 23 | Metropolitan, | 1,945,195 67 | 38,484 30 | - | 10,945 90 | 8,908 32 | 2,003,534 19 |
| 24 | Middlesex, **, | 350,555 04 | 10,131 43 | - | 2,701 18 | 503 07 | 363,890 72 |
| 25 | Naumkeag, | 134,763 74 | 1,343 94 | - | 1,583 46 | 6,222 15 | 143,913 29 |

| | | | | | | |
|----|----------------------------|----------------|------------|-------------|-------------|----------------|
| 26 | Natick & Cochituate, | 12,180 76 | \$438 67 | 150 00 | 247 40 | 13,016 83 |
| 27 | Newton, | — | — | — | — | — |
| 28 | New Bedford & Fairhaven, | 77,310 29 | 636 75 | 1,605 99 | 200 00 | 79,753 03 |
| 29 | Newburyport & Amesbury, §§ | 8,148 79 | — | — | 1,878 46 | 14,977 25 |
| | Lessee's Account, | 19,033 51 | — | 240 00 | 604 87 | 19,878 38 |
| 30 | Northampton, | 12,757 74 | 212 30 | 150 00 | — | 13,120 04 |
| 31 | North Woburn, | 3,823 14 | 156 25 | 49 00 | 8 50 | 4,036 89 |
| 32 | Onset, | 2,305 14 | — | — | — | 2,305 14 |
| 33 | Pittsfield, | 5,562 05 | — | — | — | 5,562 05 |
| 34 | Salem, | | 66 67 | — | — | 66 67 |
| 35 | Salem & Danvers, | 45,555 94 | — | 736 17 | 263 10 | 46,555 21 |
| 36 | Somerville, | — | — | — | — | 9,180 00 |
| 37 | South Boston, | 534,517 25 | — | 1,084 50 | 1,088 20 | 538,856 08 |
| 38 | Springfield, | 84,355 07 | — | 579 28 | 2,669 95 | 87,604 30 |
| 39 | Stoneham, | 18,170 65 | 240 00 | 184 75 | 26 67 | 18,622 07 |
| 40 | Taunton, | 26,255 71 | — | — | — | 26,255 71 |
| 41 | Waltham & Newton, | 11,449 72 | 50 00 | 100 00 | — | 11,599 72 |
| 42 | Winnisimmet, | † | — | — | — | 3,000 00 |
| 43 | Worcester, | 84,160 00 | 33 69 | 661 00 | 177 54 | 85,032 23 |
| | Total, | \$5,670,999 08 | \$1,733 97 | \$39,584 74 | \$74,438 71 | \$5,878,583 05 |

* Used only for freight.

§ For 41 days.

** From Oct. 1, 1885, to Aug. 20, 1886.

§§ Leased to and operated by E. P. Shaw until July, 1886, since operated by the company.

||| Leased to and operated by the Naumkeag until June 1, 1886, when it was purchased and consolidated with the Naumkeag.

† Leased to and operated by the Cambridge.

|| Commenced operating in July, 1886.

†† Road not completed and not in operation.

‡ Leased to and operated by the Middlesex.

‡ Leased to and operated by the Lynn & Boston.

¶ Commenced operating in June, 1886.

‡‡ Leased to and operated by the Middlesex.

ABSTRACT OF STREET RAILWAY RETURNS — Continued.

| STREET RAILWAYS. | | EXPENSES FOR THE YEAR. | | | | | | |
|------------------|--|------------------------------------|---------------------------|---------------------------|------------------------|-------------------------------------|-----------------------------|----------------|
| | | 26.—Repairs of Road-bed and Track. | 27.—Repairs of Equipment. | 28.—Repairs of Buildings. | 29.—Renewal of Horses. | 30.—Salaries, etc., General Office. | 31.—Wages, etc., Employees. | 32.—Provender. |
| 1 | Acushnet, | — | \$2,570 67 | — | — | \$1,169 52 | \$19,184 72 | \$12,731 66 |
| 2 | Albany Street Freight, | \$236 86 | — | — | — | 150 00 | — | — |
| 3 | Arlington, | — | — | — | — | — | — | — |
| 4 | Brockton, | 794 32 | 3,141 16 | \$58 58 | — | 3,493 76 | 25,126 50 | 15,192 52 |
| 5 | Black Rocks & Salisbury Beach, | 560 99 | 161 52 | — | — | 2,297 85 | 758 35 | 229 21* |
| 6 | Boston & Chelsea, | — | — | — | — | — | — | — |
| 7 | Boston Consolidated † | 881 66 | 5,936 78 | 424 75 | \$2,117 50 | 5,521 24 | 39,739 57 | 11,326 92 |
| 8 | Cambridge, | 29,686 76 | 88,952 30 | 3,116 48 | 22,363 70 | 13,202 56 | 263,238 74 | 110,451 39 |
| 9 | Charles River, | 304 81 | 14,404 89 | 275 58 | — | 4,436 16 | 69,120 49 | 31,796 33 |
| 10 | Citizens', | — | 339 80 | — | 25 00 | 1,062 00 | 2,983 91 | 1,617 08 |
| 11 | Fitchburg, | — | 66 85 | — | — | 874 19 | 1,470 04 | 723 91 |
| 12 | Globe, | 2,480 42 | 7,332 05 | 579 43 | 3,293 91 | 3,874 00 | 32,268 15 | 14,466 39 |
| 13 | Gloucester, | 486 68 | 538 72 | — | — | 117 00 | 5,538 18 | 3,296 53 |
| 14 | Haverhill & Groveland, | 1,676 92 | 1,790 81 | 145 00 | 400 00 | 1,700 00 | 8,237 00 | 4,893 62 |
| 15 | Highland,† | 12,935 76 | 43,746 85 | 8,981 63 | 23,370 50 | 15,666 67 | 223,077 23 | 87,422 99 |
| 16 | Holyoke, | 585 12 | 1,009 99 | 77 70 | 345 00 | 875 00 | 5,873 77 | 3,185 49 |
| 17 | Hoosac Valley, | — | — | — | — | — | — | — |
| 18 | Lowell, | 8,715 43 | 5,499 77 | 2,169 91 | 3,784 90 | 3,099 96 | 25,540 30 | 10,606 30 |
| 19 | Lowell & Dracut, | — | — | — | — | — | — | — |
| 20 | Lynn & Boston, | 28,977 97 | 36,901 51 | 1,464 08 | 23,581 17 | 10,649 84 | 158,906 41 | 60,173 24 |
| 21 | Malden & Melrose, | — | — | — | — | — | — | — |
| 22 | Merrimack Valley, | 10,456 24 | 4,631 39 | — | 2,520 00 | 1,700 00 | 14,270 71 | 7,523 90 |
| 23 | Metropolitan, | 66,382 35 | 175,016 00 | 37,470 37 | 56,398 00 | 29,399 98 | 851,463 43 | 289,353 96 |
| 24 | Middlesex,† | 15,395 01 | 28,752 70 | 2,194 86 | 17,178 00 | 16,756 20 | 119,286 90 | 61,666 34 |
| 25 | Naumkeag, | 3,673 68 | 9,300 66 | 621 42 | 7,123 33 | 5,458 15 | 48,621 22 | 22,237 58 |

| | | | | | | | | |
|----|--------------------------|---------------------|---------------------|--------------------|---------------------|---------------------|-----------------------|---------------------|
| 26 | Natick & Cohituate, | 1,210 25 | - | 745 00 | - | 900 00 | 3,271 79 | 2,192 70 |
| 27 | Newton, | - | - | - | - | - | - | - |
| 28 | New Bedford & Fairhaven, | 1,786 88 | 5,403 44 | 312 89 | 2,655 81 | 3,320 08 | 33,634 09 | 17,700 28 |
| 29 | Newburyport & Amesbury, | 1,753 34 | - | - | - | 513 19 | 1,813 38 | 1,339 12 |
| | Lessee's Account, | 529 83 | 261 32 | - | 2,949 50 | - | 5,622 32 | 4,278 85 |
| 30 | Northampton, | 1,791 16 | 1,198 00 | 43 63 | 719 35 | 1,000 00 | 3,282 00 | 2,539 94 |
| 31 | North Woburn, | 223 19 | 188 73 | 35 52 | - | 1,373 35 | 1,077 02 | 55 57 |
| 32 | Onset, | 113 32 | 7 95 | - | - | - | 888 85 | 182 16* |
| 33 | Pittsfield, | - | 129 60 | - | - | 250 00 | 2,250 00 | 972 00 |
| 34 | Salem, | - | - | - | - | - | - | - |
| 35 | Salem & Danvers, | 833 37 | 2,851 20 | 205 71 | 1,540 00 | 2,050 00 | 20,719 28 | 11,683 67 |
| 36 | Somerville, | - | - | - | - | - | - | - |
| 37 | South Boston, | 19,692 97 | 32,610 21 | 1,741 70 | 16,470 50 | 9,199 92 | 200,382 81 | 78,239 41 |
| 38 | Springfield, | 6,591 53 | 5,673 79 | 393 86 | 1,652 50 | 4,875 00 | 27,087 34 | 13,654 28 |
| 39 | Stoneham, | 2,159 64 | 1,668 05 | 119 78 | 790 00 | 2,000 00 | 5,873 41 | 3,366 79 |
| 40 | Taunton, | 3,276 57 | 2,660 31 | 360 66 | - | 1,200 00 | 6,907 85 | 5,333 29 |
| 41 | Waltham & Newton, | 2,155 68 | 265 30 | - | - | 940 00 | 3,442 44 | 1,965 06 |
| 42 | Winnistimmet, | - | - | - | - | - | - | - |
| 43 | Worcester, | 1,898 30 | 7,530 62 | 596 03 | 3,946 88 | 4,139 00 | 26,626 48 | 12,647 56 |
| | Total, | \$228,247 01 | \$440,542 94 | \$62,134 57 | \$193,225 55 | \$152,764 62 | \$2,257,584 71 | \$905,046 07 |

* Coal, wood and water for dummy engine.

† For 41 days.

‡ From Oct. 1, 1885, to Aug. 20, 1886.

ABSTRACT OF STREET RAILWAY RETURNS — Continued.

| STREET RAILWAYS. | | EXPENSES FOR THE YEAR—Concluded. | | | | | | |
|------------------|--|----------------------------------|------------|----------------|---------------------------------------|---------------------|---------------------|--------------------------------------|
| | | 33.—Taxes. | 34.—Rents. | 35.—Insurance. | 36.—Injuries to Persons and Property. | 37.—Other Expenses. | 38.—Total Expenses. | 39.—Percentage Expenses to Earnings. |
| 1 | Acushnet, | \$682 68 | — | \$591 35 | — | \$1,163 64 | \$38,094 24 | 91 |
| 2 | Albany Street Freight, | 161 98 | — | — | — | 401 50 | 950 34 | — |
| 3 | Arlington, | — | — | — | — | — | — | — |
| 4 | Brockton, | 3,089 02 | — | 890 59 | \$99 95 | 2,574 85 | 54,461 25 | 80 |
| 5 | Black Rocks & Salisbury Beach, | 130 32 | \$300 00 | — | — | 399 36 | 4,837 60 | — |
| 6 | Boston & Chelsea, | — | — | — | — | — | — | — |
| 7 | Boston Consolidated,* | — | 2,274 72 | — | 50 00 | 2,917 79 | 71,190 93 | 55 |
| 8 | Cambridge, | 22,811 12 | 12,640 75 | 5,750 46 | 34,139 77 | 30,490 30 | 586,844 33 | 84 |
| 9 | Charles River, | 1,686 42 | 6,584 42 | 1,352 22 | 1,269 86 | 8,603 35 | 139,834 53 | 103 |
| 10 | Citizens, | 144 80 | 67 38 | — | — | 641 47 | 6,881 47 | 69 |
| 11 | Fitchburg, | — | — | 96 00 | — | 780 70 | 3,511 72 | 52 |
| 12 | Globe, | 3,442 72 | — | 978 33 | 763 57 | 8,076 56 | 77,555 53 | 74 |
| 13 | Gloucester, | 18 43 | — | 466 10 | 12 11 | 1,636 49 | 12,110 24 | 83 |
| 14 | Haverhill & Groveland, | 230 21 | — | 448 24 | 100 00 | 1,166 25 | 20,788 05 | 70 |
| 15 | Highland,† | 14,902 27 | 18,985 20 | 5,138 33 | 6,002 63 | 30,844 79 | 491,074 85 | 87 |
| 16 | Holyoke, | 290 79 | — | 134 98 | — | 1,212 91 | 13,590 75 | 90 |
| 17 | Hoosac Valley, | — | — | — | — | — | — | — |
| 18 | Lowell, | 1,348 76 | — | 848 17 | 1,108 95 | 4,061 60 | 66,784 05 | 81 |
| 19 | Lowell & Dracut, | — | — | — | — | — | — | — |
| 20 | Lynn & Boston, | 6,779 71 | 21,911 92 | 3,280 19 | 1,254 55 | 18,389 43 | 372,270 02 | 89 |
| 21 | Malden & Melrose, | — | — | — | — | — | — | — |
| 22 | Merrimack Valley, | 945 60 | — | — | — | 1,040 53 | 43,088 37 | 87 |
| 23 | Metropolitan, | 34,536 13 | 7,259 48 | 12,331 89 | 28,637 44 | 64,128 79 | 1,652,377 82 | 82 |
| 24 | Middlesex,† | 13,587 15 | 5,443 59 | 3,779 85 | 6,579 69 | 18,409 68 | 309,029 47 | 85 |
| 25 | Naumkeag, | 2,382 20 | 469 18 | 1,449 34 | 526 25 | 7,881 24 | 109,744 25 | 76 |

| | | | | | | | | |
|----|--------------------------------|--------------|-------------|-------------|-------------|--------------|----------------|----|
| 26 | Natick & Cochituate, . . . | 50 68 | - | 108 85 | - | 470 39 | 8,949 66 | 69 |
| 27 | Newton, . . . | - | - | - | - | - | - | - |
| 28 | New Bedford & Fairhaven, . . . | 1,954 75 | - | 632 19 | 602 61 | 4,076 62 | 72,069 64 | 90 |
| 29 | Newburyport & Amesbury, . . . | 216 54 | - | - | - | 1,869 42 | 7,504 99 | - |
| | Lessee's Account, . . . | - | - | 160 00 | - | - | 13,801 82 | - |
| 30 | Northampton, . . . | 84 59 | - | - | - | 1,543 67 | 12,202 54 | 93 |
| 31 | North Woburn, . . . | - | - | 26 39 | 22 00 | 529 71 | 3,531 48 | 87 |
| 32 | Onset, . . . | - | - | 58 75 | - | 42 40 | 1,293 43 | - |
| 33 | Pittsfield, . . . | - | - | 121 25 | - | - | 3,722 85 | - |
| 34 | Salem, . . . | - | - | - | - | 63 67 | 66 67 | - |
| 35 | Salem & Danvers, . . . | 1,566 69 | 1,405 45 | 147 95 | 7 00 | 2,223 22 | 45,233 54 | 97 |
| 36 | Somerville, . . . | - | - | - | - | - | - | - |
| 37 | South Boston, . . . | 15,898 29 | 11,470 99 | 2,902 48 | 10,114 64 | 29,877 45 | 428,601 37 | 80 |
| 38 | Springfield, . . . | 2,837 11 | - | 633 03 | 762 95 | 1,773 55 | 65,954 94 | 75 |
| 39 | Stoneham, . . . | 183 29 | - | 292 25 | 128 00 | 523 03 | 17,104 24 | 92 |
| 40 | Taunton, . . . | 442 52 | - | 261 61 | - | 1,683 35 | 22,126 16 | 84 |
| 41 | Waltham & Newton, . . . | 31 05 | - | 99 00 | - | 2,264 78 | 11,163 31 | 96 |
| 42 | Winnisimmet, . . . | - | - | - | - | - | - | - |
| 43 | Worcester, . . . | 920 33 | - | 630 00 | 253 88 | 4,272 82 | 63,461 90 | 75 |
| | Total, . . . | \$131,356 15 | \$58,813 08 | \$43,619 29 | \$92,435 85 | \$256,038 31 | \$4,851,808 15 | 83 |

* For 41 days.

† From Oct. 1, 1885, to Aug. 20, 1886.

ABSTRACT OF STREET RAILWAY RETURNS — Continued.

| STREET RAILWAYS. | | NET INCOME, INTEREST, DIVIDENDS, ETC. | | | | | | |
|------------------|--|---------------------------------------|----------------------------|------------------------------|-----------------|--------------------------------|-----------------------------|----------------------------------|
| | | 40. — Net Income. | 41. — Interest Accrued. | 42. — Dividends Declared. | 43. — Per Cent. | 44. — Balance for the Year. | 45. — Surplus last Year. | 46. — Surplus Sept. 30, 1883. |
| 1 | Acushnet, | \$3,666 84 | — | \$2,000 00 | 2 | \$1,666 84 | \$63 34d | \$1,603 50 |
| 2 | Albany Street Freight, | 338 34d | — | — | — | 338 34d | 125 48 | 212 86d |
| 3 | Arlington, | 816 00 | — | 816 00 | 6 | — | — | — |
| 4 | Brockton, | 12,499 61 | \$2,788 57 | 15,000 00 | 10 | 5,288 96d | 14,535 12 | 9,246 16 |
| 5 | Black Rocks & Salisbury Beach, | 1,100 34 | — | — | — | 1,100 34 | 974 09 | 2,074 43 |
| 6 | Boston & Chelsea, | 7,260 00 | — | 7,260 00 | 6 | — | — | — |
| 7 | Boston Consolidated,* | 58,366 68 | 645 81 | — | — | 57,720 87 | 131,460 77 | 189,181 64 |
| 8 | Cambridge, | 115,013 68 | 29,168 13 | 80,000 00 | 5 | 5,845 55 | 37 592 34 | 43,437 89 |
| 9 | Charles River, | 3,876 32d | 6,236 14 | — | — | 10,112 46d | ***196 31 | 10,308 77d |
| 10 | Citizens', | 3,063 05 | — | — | — | 3,063 05 | — | 3,063 05 |
| 11 | Fitchburg, | 3,211 13 | 45 33 | — | — | 3,165 80 | — | 3,165 80 |
| 12 | Globe, | 26,934 01 | 1,764 74 | 10,000 00 | 5 | 15,169 27 | 4,748 88† | 19,918 15 |
| 13 | Gloucester, | 2,498 24 | — | — | — | 2,498 24 | — | 2,498 24 |
| 14 | Haverhill & Groveland, | 8,811 68 | 628 75 | 2,560 00 | 8 | 5,622 93 | 5,540 56 | ¶1,563 49 |
| 15 | Highland,† | 75,750 71 | 31,651 38 | 60,000 00 | 8 | 15,900 67d | 22,199 23 | 6,298 56 |
| 16 | Holyoke, | 1,549 06 | 87 13 | 1,000 00 | 4 | 461 93 | 1,286 24 | 1,748 17 |
| 17 | Hoosac Valley, | — | — | — | — | — | — | — |
| 18 | Lowell, | 15,243 24 | 97 50 | 5,994 00 | 6 | 9,151 74 | 36,282 66 | 45,434 40 |
| 19 | Lowell & Draent, | — | — | — | — | — | — | — |
| 20 | Lynn & Boston, | 45,887 56 | 19,536 66 | 24,000 00 | 8 | 2,350 90 | ¶38,728 83 | 41,079 73 |
| 21 | Malden & Melrose, | — | — | — | — | — | — | — |
| 22 | Merrimack Valley, | 6,497 81 | — | 3,000 00 | 6 | 3,497 81 | 9,511 32 | 13,009 13 |
| 23 | Metropolitan, | 351,156 37 | 82,395 73 | 120,000 00 | 8** | 148,760 64 | ††623,891 70 | 772,652 34 |
| 24 | Middlesex,† | 54,861 25 | 34,332 87 | 50,000 00 | 7‡ | 29,471 64d | 26,422 83 | 3,048 79d |
| 25 | Naumkeag, | 34,169 04 | 6,640 20 | 15,400 00 | 22†† | 12,128 84 | 21,908 36 | 34,037 20 |

| | | | | | | | |
|----|--------------------------------|----------------|--------------|--------------|--------------|----------------|----------------|
| 26 | Natick & Cochinuate, . . . | 4,067 17 | 333 33 | - | 3,733 84 | 378 68 | 4,112 52 |
| 27 | Newton, . . . | - | - | - | - | - | - |
| 28 | New Bedford & Fairhaven, . . . | 7,683 39 | 921 24 | - | 6,762 15 | 29,357 07 | 36,119 22 |
| 29 | Newburyport & Amesbury, . . . | 7,472 26 | 310 05 | - | 7,162 21 | 4,334 02 | 11,496 23 |
| | Lessee's Account, . . . | 6,076 56 | - | - | 6,076 56 | - | 6,076 56 |
| 30 | Northampton, . . . | 917 70 | - | - | 917 70 | 7,952 38d | 7,934 68d |
| 31 | North Woburn, . . . | 505 41 | - | - | 505 41 | - | 505 41 |
| 32 | Onset, . . . | 1,011 71 | - | - | 1,011 71 | - | 1,011 71 |
| 33 | Pittsfield, . . . | 1,839 20 | - | - | 1,839 20 | - | 1,839 20 |
| 34 | Salem, . . . | - | - | - | - | - | - |
| 35 | Salem & Danvers, . . . | 1,321 67 | 702 99 | - | 5,881 32d | 7,803 94 | 1,922 62 |
| 36 | Somerville, . . . | 9,180 00 | - | - | - | - | - |
| 37 | South Boston, . . . | 110,254 71 | 11,923 57 | - | 38,331 14 | \$31,628 05 | 69,959 19 |
| 38 | Springfield, . . . | 21,649 36 | 653 12 | - | 8,996 24 | 44,863 49 | 53,859 73 |
| 39 | Stoneham, . . . | 1,517 83 | - | - | 2,442 17d | 18,868 01 | 16,425 84 |
| 40 | Taunton, . . . | 4,129 55 | 61 00 | - | 1,668 55 | \$8,833 63 | 5,502 18 |
| 41 | Waltham & Newton, . . . | 436 41 | - | - | 436 41 | 4,087 77 | 4,524 18 |
| 42 | Winnisimmet, . . . | 3,000 00 | - | - | - | - | - |
| 43 | Worcester, . . . | 21,570 33 | 4,515 48 | - | 17,054 85 | 53,786 71 | 70,841 56 |
| | Total, . . . | \$1,026,774 90 | \$235,439 72 | \$494,070 00 | \$297,265 18 | \$1,165,937 75 | \$1,453,602 92 |

* For 41 days.

† From Oct. 1, 1885, to Aug. 20, 1886.

‡ \$14,385 10 deducted for depreciation.

¶ \$22,328 46 deducted for renewal of stable buildings.

†† \$110,000 deducted for depreciation in buildings and cars.

§§ \$3,875 deducted for depreciation in Construction and Equipment Accounts.

¶¶ Paid dividend of \$9,600 out of surplus.

† \$9,736.12 deducted for depreciation in Property Accounts.

‡ \$2,575 added for subscription for Middlesex St. extension.

** On \$1,500,000 of Capital Stock.

†† On \$70,000 of Capital Stock.

||| \$10,150 deducted for correction of Construction Account.

d Deficit.

† \$9,736.12 deducted for depreciation in Property Accounts.

‡ \$2,575 added for subscription for Middlesex St. extension.

** On \$1,500,000 of Capital Stock.

†† On \$70,000 of Capital Stock.

||| \$10,150 deducted for correction of Construction Account.

d Deficit.

ABSTRACT OF STREET RAILWAY RETURNS — Continued.

| STREET RAILWAYS. | EQUIPMENT. | | | | LENGTH OF ROAD. | | |
|--|------------|---------------------|-------------|----------------|-----------------|--------------|-------------------|
| | 47.—Cars. | 48.—Other Vehicles. | 49.—Horses. | 50.—Harnesses. | 51.—Main Line. | 52.—Sidings. | 53.—Total Length. |
| 1 Acushnet, | 37 | 1 | 153 | 30 | 6,027 | .830 | 6,857 |
| 2 Albany Street Freight, | — | — | — | — | .856 | .076 | .932 |
| 3 Arlington, | — | — | — | — | 1,576 | — | 1,576 |
| 4 Brockton, | 32 | 3 | 132 | 33 | 10,566 | .896 | 11,462 |
| 5 Black Rocks & Salisbury Beach, | 5 | — | * | — | 1,694 | .095 | 1,789 |
| 6 Boston & Chelsea, | — | — | — | — | 4,116 | .038 | 4,154 |
| 7 Boston Consolidated, | 349 | 12 | 1,747 | 533 | 37,680 | 3,271 | 40,951 |
| 8 Cambridge, | 269 | 19 | 1,354 | 434 | 43,222 | .880 | 44,102 |
| 9 Charles River, | 58 | — | 325 | 80 | 11,106 | 1,581 | 12,687 |
| 10 Citizens, | 18 | 1 | 81 | 12 | 6,595 | .632 | 7,227 |
| 11 Fitchburg, | 7 | — | 33 | 13 | 3,260 | .163 | 3,423 |
| 12 Globe, | 45 | 6 | 202 | 60 | 12,932 | 2,566 | 15,498 |
| 13 Gloucester, | 10 | 4 | 92 | 43 | 3,720 | .350 | 4,070 |
| 14 Haverhill & Groveland, | 36 | 4 | 131 | 43 | 12,558 | 1,226 | 13,784 |
| 15 Highland, | 199 | 10 | 999 | 278 | 18,544 | .990 | 19,534 |
| 16 Holyoke, | 10 | 1 | 43 | 8 | 3,150 | .754 | 3,904 |
| 17 Hoosac Valley, | 8 | + | 22 | 15 | 5,250 | — | 5,250 |
| 18 Lowell, | 33 | 7 | 125 | 30 | 6,396 | .674 | 7,070 |
| 19 Lowell & Dracut, | — | — | — | — | .380 | — | .380 |
| 20 Lynn & Boston, | 175 | 9 | 748 | 212 | 39,467 | 2,713 | 42,180 |
| 21 Malden & Melrose, | — | — | — | — | 4,573 | .475 | 5,048 |
| 22 Merrimack Valley, | 20 | 4 | 70 | 16 | 5,800 | .900 | 6,700 |
| 23 Metropolitan, | 687 | 17 | 3,543 | 1,014 | 79,847 | 7,272 | 87,119 |
| 24 Middlesex, | 150 | 18 | 716 | 180 | 19,136 | 2,281 | 21,417 |
| 25 Naumkeag, | 81 | 16 | 273 | 100 | 21,319 | 3,059 | 24,378 |

| | | | | | | | | |
|---------------|--------------------------------|-------|-----|--------|-------|---------|--------|---------|
| 26 | Natick & Cohituate, . . . | 7 | 6 | 17 | 5 | 3,000 | 200 | 3,200 |
| 27 | Newton, . . . | — | — | — | — | — | — | — |
| 28 | New Bedford & Fairhaven, . . . | 46 | 5 | 161 | 39 | 9,060 | 720 | 9,780 |
| 29 | Newburyport & Amesbury, . . . | 14† | 3 | 48 | 20 | 6,600 | 200 | 6,800 |
| 30 | Northampton, . . . | 8 | 4 | 29 | 5 | 3,200 | 30 | 3,230 |
| 31 | North Woburn, . . . | 8 | 2 | 21 | 9 | 4,730 | 90 | 4,820 |
| 32 | Onset, . . . | 5 | 1 | 8 | — | 1,300 | 125 | 1,425 |
| 33 | Pittsfield, . . . | 8 | — | 36 | 13 | 3,300 | 300 | 3,600 |
| 34 | Salem, . . . | — | — | — | — | — | — | — |
| 35 | Salem & Danvers, . . . | 24 | 2 | 117 | 30 | 8,800 | 480 | 9,280 |
| 36 | Somerville, . . . | — | — | — | — | 4,879 | 526 | 5,405 |
| 37 | South Boston, . . . | 199 | — | 903 | 350 | 13,015 | 205 | 13,220 |
| 38 | Springfield, . . . | 30 | 9 | 151 | 35 | 9,180 | 190 | 9,370 |
| 39 | Stoneham, . . . | 11 | 1 | 29 | 9 | 2,680 | 90 | 2,770 |
| 40 | Taunton, . . . | 14 | 3 | 43 | 15 | 4,090 | 284 | 4,374 |
| 41 | Waltham & Newton, . . . | 7 | 5 | 18 | 6 | 3,211 | 190 | 3,401 |
| 42 | Winnisimmet, . . . | — | — | — | — | 1,883 | 73 | 1,956 |
| 43 | Worcester, . . . | 28 | 5 | 142 | 29 | 6,631 | 372 | 7,003 |
| Total.¶ . . . | | 2,289 | 150 | 10,789 | 3,211 | 407,649 | 32,486 | 440,135 |

* One dummy engine.

† Two Baldwin noiseless street car motors.

‡ Two motors.

§ Equipment is now the property of the company.

¶ Not including Highland and Middlesex Companies.

ABSTRACT OF STREET RAILWAY RETURNS — Continued.

| | STREET RAILWAYS | MILEAGE, ETC. | | | | | ACCIDENTS. | |
|----|--|------------------|---------------------------|--------------------|---|-------------------------|--------------|----------------|
| | | 54. — Miles run. | 55. — Passengers Carried. | 56. — Round Trips. | 57. — Average No. of Passengers per Round Trip. | 58. — Persons Employed. | 59. — Fatal. | 60. — Injured. |
| 1 | Acushnet, | 263,251 | 829,755 | 37,081 | 22 | 48 | — | 1 |
| 2 | Albany Street Freight, | — | — | — | — | — | — | — |
| 3 | Arlington, | — | — | — | — | — | — | — |
| 4 | Brookton, | 216,638 | 1,224,418 | 17,904 | 69 | 46 | — | — |
| 5 | Black Rocks & Salisbury B'h, | 5,096 | 68,061 | 1,274 | — | 6 | — | — |
| 6 | Boston & Chelsea, | — | — | — | — | — | — | — |
| 7 | Boston Consolidated, * | 399,411 | 2,584,861 | 49,518 | 50 | 724 | — | — |
| 8 | Cambridge, | 2,440,911 | 12,631,611 | 294,585 | 43 | 511 | 1 | 8 |
| 9 | Charles River, | 637,221 | 2,598,551 | 87,687 | 30 | 150 | — | 2 |
| 10 | Citizens, | 36,613 | 205,581 | 8,507 | 24 | 38 | — | — |
| 11 | Fitchburg, | 16,581 | 101,091 | 3,437 | 30 | 15 | — | — |
| 12 | Globe, | 346,145 | 2,092,541 | 74,176 | 28 | 72 | — | 3 |
| 13 | Gloucester, | 38,211 | 261,823 | 7,858 | 33 | 41 | 1 | — |
| 14 | Haverhill & Groveland, | 85,867 | 436,212 | 17,250 | 25 | 40 | — | 1 |
| 15 | Highland, † | 1,949,184 | 10,727,092 | 257,557 | 42 | 404 | — | 2 |
| 16 | Holyoke, | 67,163 | 273,446 | 16,572 | 17 | 19 | — | — |
| 17 | Hoosac Valley, | — | — | — | — | — | — | — |
| 18 | Lowell, | 240,021 | 1,571,192 | 24,002 | 65 | 62 | — | — |
| 19 | Lowell & Dracut, | — | — | — | — | — | — | — |
| 20 | Lynn & Boston, | 1,307,047 | 7,756,115 | 150,634 | 51 | 295 | — | 7 |
| 21 | Malden & Melrose, | — | — | — | — | — | — | — |
| 22 | Merrimack Valley, | 190,618 | 783,818 | 38,123 | 26 | 25 | — | — |
| 23 | Metropolitan, | 6,991,048 | 39,582,061 | 1,060,062 | 37 | 1,718 | 4 | 28 |
| 24 | Middlesex, † | 1,056,937 | 7,124,066 | 153,720 | 46 | 325 | — | — |
| 25 | Naumkeag, | 341,665 | 2,609,101 | 67,551 | 40 | 75 | — | 9 |

| | | | | | | | | | |
|----|--------------------------|------------|-------------|-----------|----|-------|---|---|----|
| 26 | Natick & Cohituate, | 17,541 | 193,577 | 5,847 | 33 | 7 | - | - | - |
| 27 | Newton, | - | - | - | - | - | - | - | - |
| 28 | New Bedford & Fairhaven, | 377,981 | 1,585,315 | 79,549 | 20 | 71 | - | - | 4 |
| 29 | Newburyport & Amesbury, | 35,486 | 386,784 | 6,452 | - | 17 | - | - | - |
| 30 | Northampton, | 45,174 | 164,997 | 7,059 | 23 | 8 | - | - | - |
| 31 | North Woburn, | 19,000 | 78,731 | 3,809 | 21 | 7 | - | - | - |
| 32 | Onset, | 1,998 | 24,280 | 999 | - | 6 | - | - | - |
| 33 | Pittsfield, | 10,080 | 100,965 | 1,260 | - | 15 | - | - | - |
| 34 | Salem, | - | - | - | - | - | - | - | - |
| 35 | Salem & Danvers, | 183,737 | 713,127 | 17,595 | 40 | 37 | - | - | 5 |
| 36 | Somerville, | - | - | - | - | - | - | - | - |
| 37 | South Boston, | 1,630,459 | 10,998,508 | 247,308 | 45 | 400 | - | 3 | 8 |
| 38 | Springfield, | 282,785 | 1,641,452 | 60,104 | 27 | 65 | - | - | 5 |
| 39 | Stoneham, | 48,500 | 219,451 | 9,700 | 23 | 15 | - | - | - |
| 40 | Taunton, | 94,352 | 526,423 | 16,416 | 32 | 15 | - | - | - |
| 41 | Waltham & Newton, | 32,590 | 188,189 | 4,239 | 44 | 7 | - | - | - |
| 42 | Winnisimmet, | - | - | - | - | - | - | - | - |
| 43 | Worcester, | 252,374 | 1,741,159 | 50,170 | 35 | 60 | - | - | 3 |
| | Total, | 19,661,675 | 112,087,384 | 2,878,005 | 39 | 4,615 | - | 9 | 86 |

† From Oct. 1, 1885 to Aug. 20, 1886.

* For 41 days.

COMPARATIVE STATEMENTS FROM STREET RAILWAY RETURNS.

| | STREET RAILWAYS. | PER MILE OF ROAD OWNED. | | | PER MILE OF ROAD OPERATED. | | | |
|----|--|-----------------------------|-----------------|-----------------------------|----------------------------|--------------------------------------|-----------------------------|------------------------|
| | | 61. — Capital Stock Paid in | 62. — Net Debt. | 63. — Cost of Construction. | 64. — Cost of Equipment | 65. — Repairs of Road-bed and Track. | 66. — Repairs of Equipment. | 67. — Renewals Horses. |
| 1 | Acushnet, | \$18,516 67 | \$4,664 12 | \$11,898 70 | \$7,881 49 | - | \$402 55 | - |
| 2 | Albany Street Freight, | 58,411 20 | - | 57,320 40 | - | - | - | - |
| 3 | Arlington, | 8,629 44 | - | 8,629 44 | - | - | - | - |
| 4 | Brockton, | 14,196 48 | 8,204 68 | 15,728 99 | 4,372 79 | \$75 18 | 297 29 | - |
| 5 | Black Rocks & Salisbury Beach, | - | - | - | - | - | - | - |
| 6 | Boston & Chelsea, | 29,397 47 | - | 29,397 47 | - | - | - | - |
| 7 | Boston Consolidated, | 45,116 77 | 20,127 94 | 27,446 68 | 13,360 75 | 17 29 | 116 44 | \$41 53 |
| 8 | Cambridge, | 37,019 90 | 13,757 50 | 25,564 26 | 10,968 29 | 575 99 | 755 77 | 433 91 |
| 9 | Charles River, | 31,514 50 | 9,091 41 | 20,180 53 | 7,872 99 | 16 61 | 784 96 | - |
| 10 | Citizens', | 15,163 00 | 5,528 85 | 14,471 88 | 3,304 48 | - | 38 28 | 2 82 |
| 11 | Fitchburg, | 18,494 91 | 626 67 | 15,215 42 | 3,473 65 | - | 20 51 | - |
| 12 | Globe, | 15,465 51 | 4,818 90 | 14,633 65 | 5,365 85 | 246 93 | 729 92 | 327 92 |
| 13 | Gloucester, | 15,967 74 | 5,256 33 | 9,922 27 | 7,679 01 | 139 83 | 144 82 | - |
| 14 | Haverhill & Groveland, | 2,548 18 | 8,776 78 | 5,615 66 | 3,745 97 | 133 53 | 142 60 | 31 85 |
| 15 | Highland, | 45,846 82 | 27,131 87 | 22,871 75 | 18,175 17 | 522 66 | 1,767 55 | 944 26 |
| 16 | Holyoke, | 7,936 51 | 4,003 91 | 7,434 98 | 4,877 50 | 185 75 | 320 63 | 109 52 |
| 17 | Hoosac Valley, | - | - | - | - | - | - | - |
| 18 | Lowell, | 15,634 77 | - | 12,271 48 | 4,109 87 | 1,362 64 | 859 88 | 591 76 |
| 19 | Lowell & Dracut, | - | - | - | - | - | - | - |
| 20 | Lynn & Boston, | 7,600 71 | 10,875 03 | 11,334 73 | 3,747 62 | 586 72 | 747 15 | 477 45 |
| 21 | Malden & Melrose, | 43,188 94 | - | 49,498 83 | - | - | - | - |
| 22 | Merrimack Valley, | 8,620 69 | - | 3,448 28 | 1,379 31 | 1,802 80 | 798 51 | 434 48 |
| 23 | Metropolitan, | 25,047 90 | 16,554 21 | 20,583 50 | 11,250 08 | 777 02 | 2,048 60 | 660 15 |
| 24 | Middlesex, | 44,418 90 | 16,550 91 | 32,323 65 | 9,965 76 | 578 85 | 1,081 09 | 645 89 |
| 25 | Naumkeag, | 7,035 98 | 10,841 26 | 11,604 07 | 5,426 02 | 172 32 | 436 26 | 334 13 |

| | | | | | | | | |
|----|--------------------------|-------------|-------------|-------------|------------|----------|------------|----------|
| 26 | Natick & Cochrutuate, | 8,333 34 | 1,737 88 | 7,183 34 | 2,758 67 | - | 403 42 | 218 34 |
| 27 | Newton, | - | - | - | - | - | - | - |
| 28 | New Bedford & Fairhaven, | 14,900 66 | 3,266 49 | 12,309 61 | 5,507 67 | 197 23 | 596 41 | 293 14 |
| 29 | Newburyport & Amesbury, | 9,090 91 | 6,598 03 | 12,236 58 | - | - | - | - |
| 30 | Northampton, | 15,625 00 | 1,667 87 | 11,250 00 | 2,477 34 | 559 74 | 374 38 | 224 80 |
| 31 | North Woburn, | 12,478 86 | - | 10,848 19 | 1,760 60 | 47 19 | 39 90 | - |
| 32 | Onset, | - | - | - | - | - | - | - |
| 33 | Pittsfield, | - | - | - | - | - | - | - |
| 34 | Salem, | - | - | - | - | - | - | - |
| 35 | Salem & Danvers, | 11,363 64 | 3,049 39 | 6,961 41 | 3,184 61 | 61 14 | 209 19 | 112 99 |
| 36 | Somerville, | 31,358 90 | - | 31,358 90 | - | - | - | - |
| 37 | South Boston, | 57,625 82 | 11,615 90 | 23,260 71 | 19,934 51 | 1,271 90 | 2,106 19 | 1,063 78 |
| 38 | Springfield, | 16,339 87 | 2,595 41 | 11,237 41 | 5,073 32 | 718 03 | 618 06 | 180 01 |
| 39 | Stoneham, | 12,313 43 | - | 12,537 31 | 3,641 74 | 805 84 | 622 41 | 294 78 |
| 40 | Taunton, | 9,775 95 | - | 5,378 97 | 3,422 98 | 801 12 | 650 44 | - |
| 41 | Waltham & Newton, | 9,342 85 | 4,716 66 | 11,676 55 | 2,717 87 | 671 55 | 82 65 | - |
| 42 | Winnisimmet, | 26,550 55 | - | 26,550 55 | - | - | - | - |
| 43 | Worcester, | 6,032 27 | 12,760 97 | 15,786 59 | 7,211 42 | 286 28 | 1,135 67 | 595 22 |
| | Average, | \$22,386 04 | \$10,274 57 | \$17,272 11 | \$8,096 42 | \$522 52 | \$1,008 53 | \$412 35 |

COMPARATIVE STATEMENTS FROM STREET RAILWAY RETURNS — Continued.

| | STREET RAILWAYS. | GROSS INCOME. | | | | EXPENSES. | |
|----|--|--------------------------|-----------------------|---------------------|------------------------------|--------------------------|-----------------------|
| | | 68. — Per Mile Operated. | 69. — Per Round Trip. | 70. — Per Mile Run. | 71. — Per Passenger Carried. | 72. — Per Mile Operated. | 73. — Per Round Trip. |
| 1 | Acushnet, | \$6,539 47 | \$1 13 | \$0.1588 | \$0.0501 | \$5,965 27 | \$1 03 |
| 2 | Albany Street Freight, | — | — | — | — | — | — |
| 3 | Arlington, | — | — | — | — | — | — |
| 4 | Brockton, | 6,337 39 | 3 74 | .3085 | .0547 | 5,154 39 | 3 04 |
| 5 | Black Rocks & Salisbury Beach, | — | — | — | — | — | — |
| 6 | Black & Chelsea, | — | — | — | — | — | — |
| 7 | Boston Consolidated*, | 2,541 34 | 2 59 | .3247 | .0501 | 1,396 45 | 1 42 |
| 8 | Cambridge, | 13,617 73 | 2 38 | .2875 | .0556 | 11,386 19 | 1 99 |
| 9 | Charles River, | 7,408 76 | 1 54 | .2134 | .0523 | 7,620 00 | 1 59 |
| 10 | Citizens', | 1,120 26 | 1 17 | .2688 | .0483 | 775 20 | 81 |
| 11 | Fitchburg, | 2,062 22 | 1 95 | .3954 | .0646 | 1,077 21 | 1 02 |
| 12 | Globe, | 10,402 14 | 1 40 | .3020 | .0499 | 7,720 81 | 1 04 |
| 13 | Gloucester, | 3,927 01 | 1 86 | .3844 | .0558 | 3,555 44 | 1 54 |
| 14 | Haverhill & Groveland, | 2,357 04 | 1 72 | .3441 | .0679 | 1,655 36 | 1 21 |
| 15 | Higland,† | 22,902 04 | 2 20 | .2909 | .0529 | 19,841 41 | 1 90 |
| 16 | Holyoke, | 4,806 29 | 91 | .2259 | .0555 | 4,314 52 | 82 |
| 17 | Hoosac Valley, | — | — | — | — | — | — |
| 18 | Lowell, | 12,824 78 | 3 42 | .3418 | .0522 | 10,441 53 | 2 78 |
| 19 | Lowell & Dracut, | — | — | — | — | — | — |
| 20 | Lynn & Boston, | 8,466 44 | 2 77 | .3199 | .0539 | 7,537 36 | 2 46 |
| 21 | Malden & Melrose, | — | — | — | — | — | — |
| 22 | Merrimack Valley, | 8,549 34 | 1 30 | .2544 | .0633 | 7,429 03 | 1 13 |
| 23 | Metropolitan, | 23,451 80 | 1 89 | .2866 | .0506 | 19,341 44 | 1 56 |
| 24 | Middlesex,† | 13,682 16 | 2 36 | .3433 | .0511 | 11,619 39 | 2 00 |
| 25 | Naumkeag, | 6,750 47 | 2 11 | .4208 | .0539 | 5,147 72 | 1 61 |

| | | | | | | | |
|--------------------|------------------------------------|-------------|--------|----------|----------|-------------|--------|
| 26 | Natick & Cohituate, | 4,388 94 | 2 23 | .7231 | .0671 | 2,983 22 | 1 53 |
| 27 | Newton, | — | — | — | — | — | — |
| 28 | New Bedford & Fairhaven, | 8,802 76 | 1 00 | .2110 | .0503 | 7,954 71 | 90 |
| 29 | Newburyport & Amesbury, | — | — | — | — | — | — |
| 30 | Northampton, | 4,100 01 | 1 86 | .2916 | .0795 | 3,813 23 | 1 73 |
| 31 | North Woburn, | 853 46 | 1 06 | .2125 | .0512 | 746 61 | 93 |
| 32 | Onset, | — | — | — | — | — | — |
| 33 | Pittsfield, | — | — | — | — | — | — |
| 34 | Salem, | — | — | — | — | — | — |
| 35 | Salem & Danvers, | 3,415 64 | 2 58 | .2530 | .0652 | 3,318 67 | 2 51 |
| 36 | Somerville, | — | — | — | — | — | — |
| 37 | South Boston, | 34,803 08 | 2 18 | .3306 | .0490 | 27,682 06 | 1 73 |
| 38 | Springfield, | 9,542 95 | 1 45 | .3095 | .0534 | 7,184 63 | 1 09 |
| 39 | Stoneham, | 6,918 54 | 1 92 | .3840 | .0850 | 6,382 18 | 1 76 |
| 40 | Taunton, | 6,419 49 | 1 60 | .2793 | .0499 | 5,409 82 | 1 35 |
| 41 | Waltham & Newton, | 3,613 62 | 2 74 | .3558 | .0617 | 3,477 66 | 2 63 |
| 42 | Winnisimmet, | — | — | — | — | — | — |
| 43 | Worcester, | 12,823 44 | 1 69 | .3374 | .0488 | 9,570 48 | 1 26 |
| Average, | | \$13,457 71 | \$2 04 | \$0.2939 | \$0.0525 | \$11,107 14 | \$1 69 |

† From Oct. 1, 1885, to Aug. 20, 1886.

* For 41 days.

COMPARATIVE STATEMENTS OF STREET RAILWAY RETURNS — Concluded.

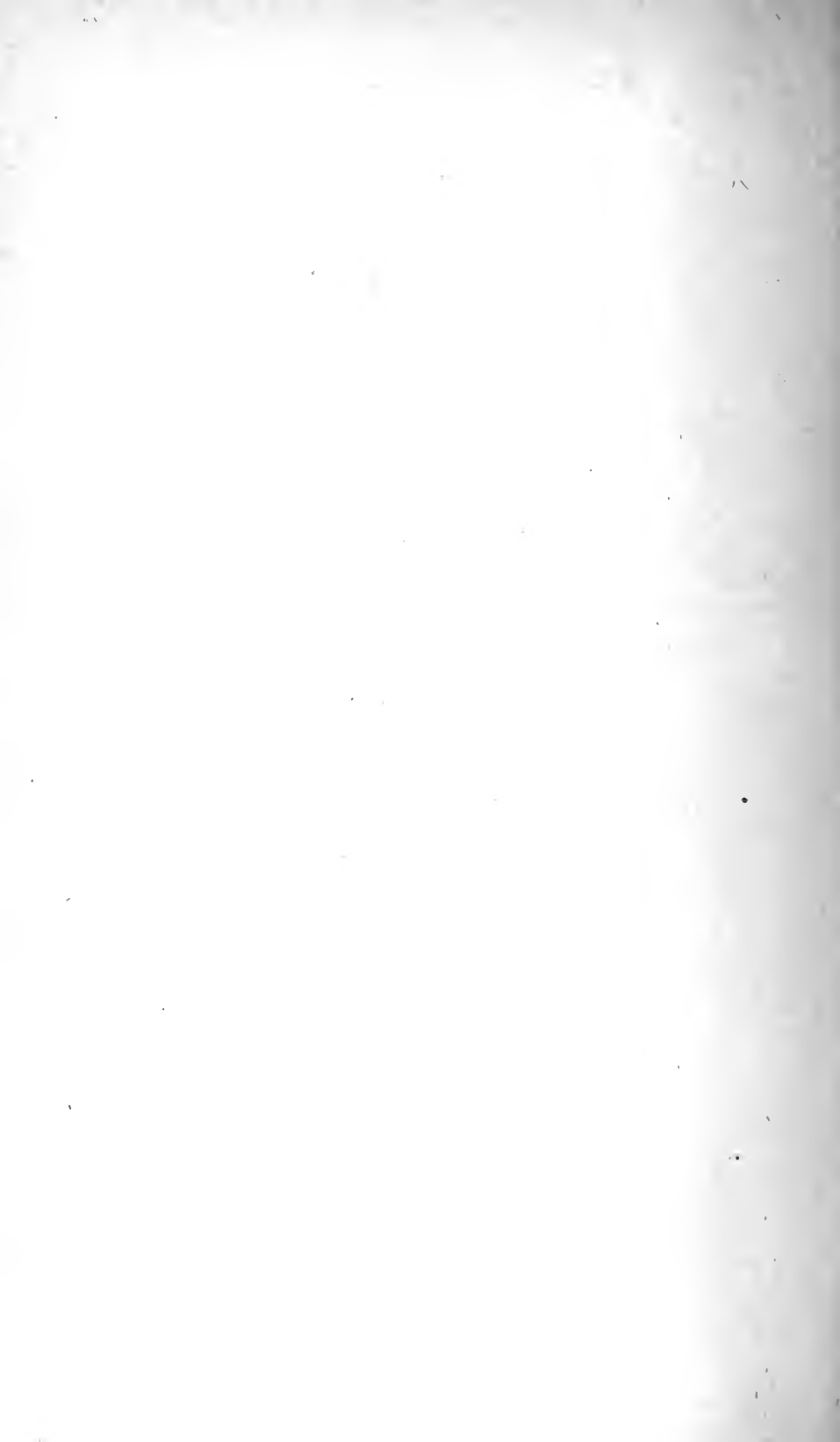
| | | EXPENSES — Continued. | | NET INCOME. | | | |
|------------------|--|-----------------------|------------------------------|--------------------------|-----------------------|---------------------|------------------------------|
| | | 74. — Per Mile Run. | 75. — Per Passenger Carried. | 76. — Per Mile Operated. | 77. — Per Round Trip. | 78. — Per Mile Run. | 79. — Per Passenger Carried. |
| | | | | | | | |
| STREET RAILWAYS. | | | | | | | |
| 1 | Acushnet, | \$0.1448 | \$0.0459 | \$574 20 | \$0.10 | \$0.0140 | \$0.0012 |
| 2 | Albany Street Freight, | — | — | — | — | — | — |
| 3 | Arlington, | — | — | — | — | — | — |
| 4 | Brockton, | .2509 | .0445 | 1,183 00 | .70 | .0576 | .0102 |
| 5 | Black Rocks & Salisbury Beach, | — | — | — | — | — | — |
| 6 | Boston & Chelsea, | — | — | — | — | — | — |
| 7 | Boston Consolidated, * | .1784 | .0271 | 1,144 89 | 1.17 | .1463 | .0280 |
| 8 | Cambridge, | .2404 | .0465 | 2,231 54 | .39 | .0471 | .0091 |
| 9 | Charles River, | .2195 | .0538 | 211 24d | .05d | .0061d | .0015d |
| 10 | Citizens, | .1860 | .0334 | 345 06 | .36 | .0828 | .0149 |
| 11 | Fitchburg, | .2065 | .0337 | 985 01 | .93 | .1889 | .0309 |
| 12 | Globe, | .2241 | .0370 | 2,681 33 | .36 | .0779 | .0129 |
| 13 | Gloucester, | .3187 | .0402 | 671 57 | .32 | .0657 | .0096 |
| 14 | Haverhill & Groveland, | .2417 | .0477 | 701 68 | .51 | .1024 | .0202 |
| 15 | Highland, † | .2519 | .0458 | 3,060 63 | .30 | .0390 | .0071 |
| 16 | Holyoke, | .2028 | .0498 | 491 77 | .09 | .0231 | .0057 |
| 17 | Hoosac Valley, | — | — | — | — | — | — |
| 18 | Lowell, | .2782 | .0425 | 2,383 25 | .64 | .0636 | .0097 |
| 19 | Lowell & Dracut, | — | — | — | — | — | — |
| 20 | Lynn & Boston, | .2848 | .0480 | 929 08 | .31 | .0351 | .0059 |
| 21 | Malden & Melrose, | — | — | — | — | — | — |
| 22 | Merrimack Valley, | .2204 | .0550 | 1,120 31 | .17 | .0340 | .0083 |
| 23 | Metropolitan, | .2364 | .0417 | 4,110 36 | .33 | .0302 | .0089 |
| 24 | Middlesex, † | .2923 | .0434 | 2,002 77 | .36 | .0310 | .0077 |
| 25 | Namkeag, | .3209 | .0411 | 1,602 75 | .50 | .0999 | .0128 |

| | | | | | | | | | | | |
|----|--------------------------|---|---|---|---|----------|----------|------------|--------|----------|----------|
| 26 | Natick & Cohituate, | . | . | . | . | .4972 | .0461 | 1,355 72 | .70 | .2259 | .0210 |
| 27 | Newton, | . | . | . | . | — | — | — | — | — | — |
| 28 | New Bedford & Fairhaven, | . | . | . | . | †1907 | .0455 | 848 05 | .10 | .0203 | .0048 |
| 29 | Newburyport & Amesbury, | . | . | . | . | — | — | — | — | — | — |
| 30 | Northampton, | . | . | . | . | .2712 | .0739 | 286 78 | .13 | .0204 | .0056 |
| 31 | North Woburn, | . | . | . | . | .1859 | .0448 | 106 85 | .13 | .0266 | .0064 |
| 32 | Onset, | . | . | . | . | — | — | — | — | — | — |
| 33 | Pittsfield, | . | . | . | . | — | — | — | — | — | — |
| 34 | Salem, | . | . | . | . | — | — | — | — | — | — |
| 35 | Salem & Danvers, | . | . | . | . | .2458 | .0634 | 96 97 | .07 | .0072 | .0018 |
| 36 | Somerville, | . | . | . | . | — | — | — | — | — | — |
| 37 | South Boston, | . | . | . | . | .2630 | .0390 | 7,121 02 | .45 | .0676 | .0100 |
| 38 | Springfield, | . | . | . | . | .2330 | .0402 | 2,358 32 | .36 | .0765 | .0132 |
| 39 | Stoneham, | . | . | . | . | .3527 | .0781 | 566 36 | .16 | .0313 | .0069 |
| 40 | Taunton, | . | . | . | . | .2354 | .0421 | 1,009 67 | .25 | .0439 | .0078 |
| 41 | Waltham & Newton, | . | . | . | . | .3424 | .0594 | 135 96 | .11 | .0134 | .0023 |
| 42 | Winnisimmet, | . | . | . | . | — | — | — | — | — | — |
| 43 | Worcester, | . | . | . | . | .2518 | .0364 | 3,252 96 | .43 | .0856 | .0124 |
| | Average, . | . | . | . | . | \$0.2467 | \$0.0433 | \$2,350 57 | \$0.35 | \$0.0522 | \$0.0092 |

* For 41 days.

† From Oct. 1, 1885, to Aug. 20, 1886.

d Deficit.



TABULATED STATEMENT

COMPILED FROM

RETURNS OF RAILROADS.

[175]

| RAILROADS AND BRANCHES. (BRANCHES IN ITALICS) | WHERE LOCATED. | | LENGTH. | | DOUBLE TRACK. | | SIDINGS. | | 7.—Total length com- puted as single track. |
|--|--------------------------|-------------------|-----------|-------------|----------------|--------------------|----------------|--------------------|--|
| | From. | To. | 1.—Total. | 2.—In Mass. | 3.—In Mass. | 4.—Out of Mass. | 5.—In Mass. | 6.—Out of Mass. | |
| ATTLEBOROUGH BRANCH. (See <i>Boston & Providence</i>). | | | | | | | | | |
| BERKSHIRE. (See <i>Housatonic</i>). | | | | | | | | | |
| BOSTON & ALBANY. | | | | | | | | | |
| <i>Athol</i> . | Boston. | Albany, N. Y. | 201.650 | 162.350 | 162.350 | 39.300 | — | — | — |
| <i>Grand Junction</i> . | Springfield. | Athol. | 46.510 | 46.510 | — | — | — | — | — |
| <i>Newton Lower Falls</i> . | Cottage Farm. | East Boston. | 9.300 | 9.300 | 5.060 | — | — | — | — |
| <i>Newton Highlands</i> . | Riverside Junc. | Newton L. Falls. | 1.100 | 1.100 | — | — | — | — | — |
| | Beacon St., Bos- ton. | Riverside Jct. | 9.890 | 9.890 | 9.880 | — | — | — | — |
| <i>Saxonville</i> . | Natick. | Saxonville. | 3.700 | 3.700 | — | — | — | — | — |
| <i>Milford</i> . | S. Framingham. | Milford. | 12. | 12. | — | — | — | — | — |
| <i>Millbury</i> . | Millbury Junc. | Millbury Village. | 3. | 3. | — | — | — | — | — |
| <i>Chatham & Hudson</i> . | Chatham, N. Y. | Hudson, N. Y. | 17.330 | — | — | 1. | — | — | — |
| North Brookfield. | E. Brookfield. | N. Brookfield. | 4.160 | 4.160 | — | — | .490 | — | 4.650 |
| Pittsfield & North Adams. | Pittsfield. | North Adams. | 18.550 | 18.550 | — | — | 4.930 | — | 23.480 |
| Providence, Webster & Springfield. | North Webster. | Auburn Station. | 10.110 | 10.110 | — | — | 1.130 | — | 11.240 |
| Ware River. | Palmer. | Winchendon. | 49.350 | 49.350 | — | — | 5.610 | — | 54.960 |
| Spencer. | Spencer. | B. & A. R.R. | 2.165 | 2.165 | — | — | .745 | — | 2.910 |
| BOSTON & LOWELL. | Boston. | Lowell. | 26.750 | 26.750 | 26.750 | — | 54.610 | — | 194.900 |
| <i>Lexington & Arlington</i> . | Medford Junc. | Lexington. | 9.250 | 9.250 | 9.250 | — | — | — | — |
| <i>Stoneham</i> . | Woburn Junc. | Stoneham. | 2.500 | 2.500 | — | — | — | — | — |
| <i>Woburn</i> . | Winchester. | N. Woburn Jct. | 6.200 | 6.200 | 6.200 | — | — | — | — |
| <i>Mystic</i> . | Milk Row Junc. | Mystic Wharves. | 2.250 | 2.250 | — | — | — | — | — |
| <i>Lawrence</i> . | — | In Wilmington. | 3.210 | 3.210 | — | — | — | — | — |
| <i>Middlesex Central</i> . | Lexington. | Concord. | 11.080 | 11.080 | — | — | — | — | — |
| <i>Salem & Lowell</i> . | Tewksbury. | Peabody. | 16.800 | 16.800 | — | — | — | — | — |
| <i>Lowell & Lawrence</i> . | Lowell. | S. Lawrence. | 12.420 | 12.420 | — | — | — | — | — |
| <i>Bedford & Littleton</i> . | Bedford. | Billerica. | 7.630 | 7.630 | — | — | — | — | — |

| RAILROADS AND BRANCHES. (BRANCHES IN ITALICS.) (Continued.) | WHERE LOCATED. | | LENGTH. | | DOUBLE TRACK. | | SIDINGS. | | 7. — Total length com- puted as single track. |
|---|---------------------------|---------------------------|-------------|---------------|------------------|----------------------|------------------|----------------------|--|
| | From. | To. | 1. — Total. | 2. — In Mass. | 3. — In Mass. | 4. — Out of Mass. | 5. — In Mass. | 6. — Out of Mass. | |
| BOSTON & PROVIDENCE. | | | | | | | | | |
| <i>West Roxbury</i> , . . . | Boston, . . . | Providence, R.I., . . . | 44. | 38.142 | 38.142 | 5.858 | 40.000 | 12.000 | 159.752 |
| <i>Dedham</i> , . . . | Forest Hills Sta'n, . . . | Dedham, . . . | 5.366 | 5.366 | — | — | — | — | — |
| <i>Stoughton</i> , . . . | Readville, . . . | Dedham, . . . | 2.224 | 2.224 | — | — | — | — | — |
| <i>India Point</i> , . . . | Canton, . . . | Stoughton, . . . | 4.114 | 4.114 | — | — | — | — | — |
| Attleborough Branch, . . . | Seekonk, . . . | Providence, R.I., . . . | 8.048 | 3.485 | — | — | 1. | — | 5. |
| BOSTON, WINTHROP & SHORE, | Attleborough, . . . | N. Attleborough, . . . | 4. | 4. | — | — | .810 | — | 9.460 |
| <i>Narrow Gauge</i> , . . . | Point Shirley, . . . | Point of Pines, . . . | 6.410 | 6.410 | — | — | — | — | — |
| <i>Wide Gauge</i> , . . . | Ocean Spray, . . . | Winthrop J., . . . | 1.780 | 1.780 | — | — | — | — | — |
| CENTRAL MASSACHUSETTS, | Crescent Beach, . . . | Revere J., . . . | .460 | .460 | — | — | — | — | — |
| CHESHIRE, . . . | Cambridge, . . . | Jeffersons, . . . | 44.030 | 44.030 | — | — | 3.130 | — | 47.160 |
| Monadnock, . . . | S. Ashburnham, . . . | Bellows Falls, Vt., . . . | 53.620 | 10.810 | — | — | 3.170 | 13.810 | 70.930 |
| CNELSEA BEACH (See <i>Eastern</i>), . . . | Winchendon, . . . | Peterboro', N.H., . . . | 15.800 | 2.038 | — | — | — | .700 | 16.500 |
| CONNECTICUT RIVER, . . . | — | — | 50. | 50. | 36.000 | — | 41.440 | — | 133.290 |
| <i>Chicopee Falls</i> , . . . | Springfield, . . . | S. Vernon, Vt., . . . | 2.350 | 2.350 | — | — | — | — | — |
| <i>Easthampton</i> , . . . | Chicopee, . . . | Chicopee Falls, . . . | 3.500 | 3.500 | — | — | — | — | — |
| DANVERS. (See <i>Boston & Maine</i>), . . . | Mt. Tom Junc., . . . | Easthampton, . . . | — | — | — | — | — | — | — |
| DORCHESTER & MILTON. (See <i>Old Colony</i>), . . . | — | — | — | — | — | — | — | — | — |
| EASTERN. (See <i>Boston & Maine</i>), . . . | — | — | — | — | — | — | — | — | — |
| FALL RIVER. (See <i>Old Colony</i>), . . . | — | — | — | — | — | — | — | — | — |
| FALL RIVER, WARREN & PROVIDENCE (owned by <i>Old Colony Railroad Co.</i>), . . . | Fall River, . . . | Warren, R. I., . . . | 5.794 | 3.662 | — | — | .040 | .480 | 6.314 |

| FITCHBURG, | Boston, | Fitchburg, | 50. | 50. | 50. | 81.660 | 1.410 | 267.320 |
|---|-----------------|--------------------|--------|--------|--------|--------|-------|---------|
| <i>Ashburnham,</i> | — | In Ashburnham, | 2.590 | 2.590 | — | — | — | — |
| <i>Ice,</i> | — | In Charlestown, | .680 | .680 | — | — | — | — |
| <i>Watertown Branch,</i> | N. Cambridge, | Waltham, | 8.260 | 8.260 | — | — | — | — |
| <i>Lancaster & Marlborough,</i> | South Acton, | Marlborough, | 12.420 | 12.420 | — | — | — | — |
| <i>Peterborough & Shirley,</i> | Ayer, | Greenville, N.H., | 23.620 | 14.250 | — | — | — | — |
| <i>Worcester,</i> | Worcester, | Winchendon, | 36. | 36. | — | — | — | — |
| Vermont & Massachusetts, | Fitchburg, | Greenfield, | 56. | 56. | 54.200 | 28.030 | — | 141.030 |
| <i>Turner's Falls,</i> | Greenfield, | Turner's Falls, | 2.800 | 2.800 | — | — | — | — |
| HANOVER BRANCH, | N. Abington, | South Hanover, | 8. | 8. | — | 1. | — | 9. |
| HOLYOKE & WESTFIELD. (See | — | — | — | — | — | — | — | — |
| <i>N. Haven & Northampton).</i> | — | — | — | — | — | — | — | — |
| HORN POND BRANCH. (See | — | — | — | — | — | — | — | — |
| <i>Boston & Lowell),</i> | — | — | — | — | — | — | — | — |
| HOUSATONIC (Ct.), | W. Stockbridge, | State Line of Ct., | 21.030 | 21.030 | — | 4.490 | — | 25.520 |
| Berkshire, | Vandusenville, | Pittsfield, | 22.930 | 22.930 | — | 4.990 | — | 27.920 |
| Stockbridge & Pittsfield, | W. Stockbridge, | State Line, N.Y., | 2.640 | 2.640 | — | 2.380 | — | 5.020 |
| West Stockbridge, | — | — | — | — | — | — | — | — |
| LOWELL & ANDOVER. (See | — | — | — | — | — | — | — | — |
| <i>Boston & Maine.)</i> | — | — | — | — | — | — | — | — |
| MILFORD, FRANKLIN & PROV. | — | — | — | — | — | — | — | — |
| (See <i>Milford & Woonsocket</i>), | — | — | — | — | — | — | — | — |
| MILFORD & WOONSOCKET, | Ashland, | Bellingham, | 15.327 | 15.327 | — | 1.606 | — | 16.933 |
| Milford, Franklin & Prov., | Franklin, | Bellingham, | 4.600 | 4.600 | — | .407 | — | 5.007 |
| MONADNOCK. (See <i>Cheshire</i>), | — | — | — | — | — | — | — | — |

| | Franklin, Springfield, | State Line of R.I. State Line of Ct., | 6,620 7,500 | 6,620 7,500 | - - | 1,006 .500 | - - | 7,626 8. |
|---|---------------------------|--|----------------|----------------|--------|---------------|--------|-------------|
| Rhode Isl'd & Massachusetts, Springfield & New London, NEW YORK, NEW HAVEN & HARTFORD, | Harlem Jet, N.Y. | Springfield, | 123,200 | 5,870 | 5,870 | 5,760 | 83,355 | 353,015 |
| N. Britain (Ct.), | Berlin, Ct., | New Britain, Ct., | 3. | - | - | - | - | - |
| Middletown, (Ct.), | Berlin, Ct., | Middletown, Ct., | 10. | - | - | - | - | - |
| Suffield (Ct.), | Windsor Locks, | Suffield, Ct., | 4,500 | - | - | - | - | - |
| NORWICH & WORCESTER, | Worcester, | Norwich, Ct., | 59,750 | 18,500 | - | 7,020 | 14,080 | 87,580 |
| Allyn's Point (Ct.), | Norwich, Ct., | Allyn's Point, Ct., | 6,300 | - | - | - | - | - |
| Connection N.L.N.R.R., | - | In Norwich, Ct., | .430 | - | - | - | - | - |
| NORTH BROOKFIELD. (See Boston & Albany), | - | - | - | - | - | - | - | - |
| { | Boston, | Provincetown, | 120,010 | - | - | - | - | - |
| { | S. Braintree, | Plymouth, | 26,040 | - | - | - | - | - |
| { | Braintree, | Kingston, | 32,340 | - | - | - | - | - |
| { | May Flower Pk., | Newport, | 55,020 | - | - | - | - | - |
| { | Middleborough, | Somerset June, | 14,960 | - | - | - | - | - |
| { | Raynham, | Whittenton Jct., | 3,380 | - | - | - | - | - |
| { | Fitchburg, | New Bedford, | 91,020 | - | - | - | - | - |
| { | So. Framingham | Lowell, | 26,120 | - | - | - | - | - |
| { | Middleborough, | Taunton, | 8,040 | - | - | - | - | - |
| Middleboro' & Taunton, | - | In Stoughton, | 1,650 | - | - | - | - | - |
| Easton, | - | Bridgewater, | 7,330 | - | - | - | - | - |
| Bridgewater, | - | - | .750 | - | - | - | - | - |
| Brookton, | S. Abington, | Braintree, | 5,410 | - | - | - | - | - |
| Grande, | Atlantic, | Buzzard's Bay, | 17,540 | - | - | - | - | - |
| Wood's Holl, | Yarmouth, | Ilyannis, | 5,050 | - | - | - | - | - |
| Hyanis, | Harrison Sq., | Milton L. Mills, | 2,390 | - | - | - | - | - |
| Shamuel, | - | - | - | - | - | - | - | - |
| Connection with F. R., | - | - | - | - | - | - | - | - |
| W. & P. R.R., | Bowenville St'n, | Marlborough, | 2,160 | - | - | - | - | - |
| Marlborough, | S. Marlborough, | In New Bedford, | 1,470 | - | - | - | - | - |
| Acushnet, | - | - | .350 | - | - | - | - | - |
| OLD COLONY, | - | - | - | 352,700 | 94,100 | 144,500 | 9,710 | 701,920 |

| | 8. — BOSTON & ALBANY. | 9. — FITCHBURG. | 10. — BOSTON & LOWELL. | 11. — BOSTON & MAINE. |
|---|--------------------------|-----------------|---------------------------|--------------------------|
| CAPITAL STOCK. | | | | |
| Amount paid in, | \$20,000,000 00 | \$5,286,600 00 | \$5,129,400 00 | \$7,000,000 00 |
| Number of stockholders, | 6,766 | 3,064 | 1,451 | 4,038 |
| Stockholders in Massachusetts, | 5,900 | 2,640 | 1,294 | 2,403 |
| Amount of stock held in Massachusetts, | \$17,598,800 00 | \$4,667,900 00 | \$4,277,260 00 | \$4,855,000 00 |
| DEBT. | | | | |
| Funded debt, | \$10,858,000 00 | \$5,140,600 00 | \$4,346,400 00 | \$4,426,000 00 |
| Unfunded debt, | 888,572 11 | 1,857,051 20 | 1,549,595 22 | 2,086,861 89 |
| TOTAL GROSS DEBT, | 11,696,572 11 | 6,997,651 20 | 5,895,995 22 | 6,512,861 89 |
| PERMANENT INVESTMENTS. | | | | |
| Construction, | \$25,450,340 54 | \$5,673,540 03 | \$7,036,723 54 | \$9,620,937 63 |
| Equipment, | 3,145,400 00 | 2,680,913 87 | 1,199,029 41 | 1,308,180 00 |
| Other property, | 1,606,672 16 | 1,371,706 60 | 1,732,468 63 | 1,171,226 33 |
| TOTAL PERMANENT INVESTMENTS, | 30,202,412 70 | 9,726,160 50 | 9,968,221 58 | 12,100,343 96 |
| Cash and cash assets, | 2,712,661 32 | 2,968,423 42 | 2,257,363 45 | 3,260,067 06 |
| TOTAL PROPERTY AND ASSETS, | 32,915,074 02 | 12,694,583 92 | 12,225,585 03 | 15,360,411 02 |
| REVENUE FOR THE YEAR. | | | | |
| From local passengers, | \$2,188,745 28 | \$803,369 04 | \$1,421,216 07 | \$3,477,249 59 |
| through passengers, | 1,105,258 03 | 268,920 38 | 404,557 53 | 563,036 82 |
| express and extra baggage, | 247,727 83 | 81,143 94 | 93,297 39 | 188,381 24 |
| mails, | 148,106 74 | 30,528 19 | 71,019 34 | 95,448 66 |
| other sources passenger department, | | | | |
| <i>Total earnings passenger department,</i> | 3,689,837 88 | 1,183,961 55 | 1,990,090 33 | 4,324,116 31 |

| | | | | |
|---|---------------------------|----------------|-------------------------|----------------|
| From local freight, | 2,189,815 28 | 741,854 85 | 1,246,507 36 | 2,081,281 05 |
| through freight, | 2,109,267 62 | 1,336,590 71 | 1,253,615 08 | 848,485 02 |
| other sources freight department, | — | — | — | — |
| <i>Total earnings freight department,</i> | 4,299,082 90 | 2,078,445 56 | 2,500,122 44 | 2,929,766 07 |
| TOTAL TRANSPORTATION EARNINGS, | 7,988,920 78 | 3,262,407 11 | 4,490,212 77 | 7,263,882 38 |
| From rents for use of road, | — | 51,000 00 | — | 22,403 79 |
| all other sources, | 309,312 61 | 86,135 37 | 138,173 77 | 267,405 13 |
| TOTAL INCOME FROM ALL SOURCES, | 8,298,733 39 | 3,399,542 48 | 4,628,386 54 | 7,543,691 30 |
| EXPENSES. | | | | |
| Transportation expenses, | \$5,313,473 45 | \$2,408,964 65 | \$3,184,470 29 | \$4,508,052 46 |
| Taxes, | 496,914 60 | 150,700 34 | 170,175 55 | 259,247 38 |
| TOTAL EXPENSES, | 5,810,388 05 | 2,559,664 99 | 3,354,645 84 | 4,767,299 84 |
| NET INCOME, DIVIDENDS, ETC. | | | | |
| Net income, | \$2,488,345 34 | \$839,877 49 | \$1,273,740 70 | \$2,776,391 46 |
| Rents, | 78,000 00 | 256,480 00 | 718,568 86 | 1,786,457 75 |
| Interest accrued, | 663,420 41 | 260,763 00 | 253,084 27 | 289,933 71 |
| Dividends earned, | 1,746,924 93 | 322,634 49 | 302,087 57 | 700,000 00 |
| Per cent., | 8.7 | 6.1 | 5.9 | 10.0 |
| Dividends declared, | 1,547,804 00 | 264,330 00 | 290,133 00 [†] | 595,000 00 |
| Per cent., | 8.0* | 5.0 | 6.0 [†] | 8.5 |
| Balance for the year, | 199,120 93 | 58,304 49 | 11,954 57 | 105,000 00 |
| Surplus last year, | 16,449 43 | 352,028 23 | 474,239 54 | 1,742,549 13 |
| Surplus Sept. 30, 1886, | 1,218,501 91 [†] | 410,332 72 | 486,194 11 | 1,847,549 13 |

* On stock other than that held in the treasury of the company (\$1,044,337).

† On \$4,835,500 Capital Stock.

† Includes Improvement Fund of \$1,002,931.55

| | 8. — BOSTON & ALBANY — COIL. | 9. — FITCHBURG — COIL. | 10. — BOSTON & LOWELL — COIL. | 11. — BOSTON & MAINE — COIL. |
|---|---------------------------------|------------------------|----------------------------------|---------------------------------|
| MILEAGE, TRAFFIC, ETC | | | | |
| Passenger-train mileage, | 2,069,738 | 1,280,868 | 2,240,303 | 3,084,970 |
| Freight-train mileage, | 2,935,251 | 1,159,645 | 1,702,119 | 1,507,212 |
| Total revenue-train mileage, | 5,004,989 | 2,440,513 | 3,942,422 | 4,592,182 |
| Switching-train mileage, | 566,273 | 703,286 | 648,105 | 824,075 |
| Other train mileage, | 123,619 | 56,307 | 90,956 | 181,235 |
| TOTAL TRAIN MILEAGE, | 5,694,881 | 3,230,106 | 4,681,483 | 5,597,492 |
| Number season-ticket passengers, | 586,804 | 297,313 | 539,003 | 2,509,157 |
| Number local passengers (including season), | 8,738,833 | 3,863,556 | 6,334,450 | 16,325,621 |
| Number through passengers,* | 988,074 | 266,839 | 365,580 | 696,960 |
| Total number of passengers carried, | 9,726,907 | 4,130,395 | 6,700,030 | 17,022,581 |
| Local passenger mileage, | 122,646,388 | 45,862,118 | 70,282,913 | 190,847,777 |
| Through passenger mileage,* | 55,141,051 | 15,211,669 | 18,083,625 | 33,375,514 |
| Total passenger mileage, | 177,787,439 | 61,073,787 | 88,366,538 | 224,223,291 |
| Tons of local freight carried, | 1,826,384 | 781,665 | 1,230,682 | 1,869,032 |
| Tons of through freight carried,* | 1,680,092 | 1,727,466 | 1,350,973 | 834,169 |
| Total tons of freight carried, | 3,506,476 | 2,509,131 | 2,581,655 | 2,703,201 |
| Local freight mileage, | 122,415,656 | 29,276,668 | 45,060,903 | 74,820,383 |
| Through freight mileage,* | 268,048,722 | 165,836,414 | 104,773,851 | 54,305,488 |
| Total freight mileage, | 390,464,378 | 195,113,082 | 149,834,754 | 129,125,871 |
| Av. rate of fare per mile, local passengers, through passengers,* | 1.93 cents. | 1.73 cents. | 2.21 cents. | 2.14 cents. |
| season-ticket passengers, | 2.00 " | 1.76 " | 2.23 " | 1.69 " |
| ALL PASSENGERS, | .65 " | .66 " | .65 " | .73 " |
| Av. rate of freight per mile, local freight, through freight,* | 1.85 " | 1.75 " | 2.06 " | 1.80 " |
| ALL FREIGHT, | 1.79 " | 2.53 " | 2.76 " | 2.78 " |
| | .79 " | .81 " | 1.20 " | 1.56 " |
| | 1.10 " | 1.07 " | 1.67 " | 2.27 " |

| | | | | | | | |
|--|---|---|---|-----------|-----------|-----------|-----------|
| Passengers to Boston (including season), | . | . | . | 2,944,147 | 1,513,882 | 2,385,116 | 5,496,045 |
| Passengers from Boston (including season), | . | . | . | 2,944,546 | 1,508,861 | 2,337,886 | 5,511,934 |
| Season-ticket passengers to and from Boston, | . | . | . | 457,917 | 152,036 | 469,548 | 1,589,394 |
| EQUIPMENT. | | | | | | | |
| Number of locomotives, | . | . | . | 245 | 112 | 177 | 233 |
| passenger cars, | . | . | . | 219 | 131 | 160 | 368 |
| parlor and sleeping cars, | . | . | . | 14 | — | 11 | 15 |
| mail, baggage, and express cars, | . | . | . | 52 | 29 | 80 | 90 |
| freight cars (basis 8 wheels), | . | . | . | 5,562 | 3,397 | 3,576 | 4,203 |
| other cars, | . | . | . | 649 | 160 | 103 | 320 |
| GENERAL INFORMATION, ETC. | | | | | | | |
| Total miles of road operated, | . | . | . | 387,420 | 229,370 | 717,240 | 583,650 |
| Same in Massachusetts, | . | . | . | 330,790 | 220,000 | 137,440 | 248,770 |
| Average number of persons employed, | . | . | . | 5,149 | 2,327 | 3,513 | 4,913 |

* To and from other roads.

| | 12. — BOSTON & PROVIDENCE. | 13. — NEW YORK & NEW ENGLAND. | 14. — OLD COLONY. | 15. — BOSTON, WINTHROP & SHORE. |
|--|----------------------------|-------------------------------|-------------------|---------------------------------|
| CAPITAL STOCK. | | | | |
| Amount paid in, | \$4,000,000 00 | \$21,900,000 00 | \$11,157,200 00 | \$277,600 00 |
| Number of stockholders, | 1,619 | 1,304* | 5,806 | 51 |
| Stockholders in Massachusetts, | 1,269 | 823* | 5,448 | 50 |
| Amount of stock held in Massachusetts, | \$3,309,000 00 | \$6,424,200 00* | \$10,437,800 00 | \$259,600 00 |
| DEBT. | | | | |
| Funded debt, | \$760,000 00 | \$16,053,496 38 | \$9,607,300 00 | \$200,000 00 |
| Unfunded debt, | 297,808 13 | 570,909 87 | 1,218,783 62 | 6,819 00 |
| TOTAL GROSS DEBT, | 1,057,808 13 | 16,624,406 25 | 10,826,083 62 | 206,819 00 |
| PERMANENT INVESTMENTS. | | | | |
| Construction, | \$1,688,774 38 | \$32,595,858 55 | \$18,025,152 76 | \$342,918 37 |
| Equipment, | 207,400 00 | 3,805,644 58 | 2,165,759 08 | 6,500 00 |
| Other property, | 288,856 50 | 480,710 40 | 1,726,500 69 | 116,100 00 |
| TOTAL PERMANENT INVESTMENTS, | 5,185,030 88 | 36,882,293 53 | 21,917,412 53 | 465,518 37 |
| Cash and cash assets, | 363,115 10 | 971,910 60 | 1,044,914 81 | 19,672 73 |
| TOTAL PROPERTY AND ASSETS, | 5,548,145 98 | 37,854,204 13 | 22,962,327 34 | 485,191 10 |
| REVENUE FOR THE YEAR. | | | | |
| From local passengers, | \$927,869 22 | \$921,143 81 | \$1,932,765 46 | \$11,624 17 |
| through passengers, | 156,144 31 | 368,462 39 | 449,283 35 | 5,612 40 |
| express and extra baggage, | 40,661 35 | 100,451 19 | 148,643 39 | - |
| mails, | 14,153 73 | 46,658 95 | 43,894 80 | - |
| other sources passenger department, | - | - | - | - |
| Total earnings passenger department, | 1,138,828 61 | 1,436,716 34 | 2,574,587 00 | 17,236 57 |

| | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|--|
| From local freight, through freight, other sources freight department, <i>Total earnings freight department,</i> <i>TOTAL TRANSPORTATION EARNINGS,</i> From rents for use of road, all other sources, <i>TOTAL INCOME FROM ALL SOURCES,</i> | . | . | . | . | . | . | . | . | . | 358,064 18 264,311 02 — 622,375 20 1,761,203 81 — 23,601 38 1,784,805 19 | 731,706 83 1,530,772 35 — 2,262,479 18 3,699,195 52 — 200,210 25 3,899,405 77 | 1,233,671 45 623,592 31 — 1,857,263 76 4,431,850 76 3,600 00 338,563 61 4,774,014 37 | — — — 17,236 57 — 303 50 17,540 07 |
| EXPENSES. | | | | | | | | | | | | | |
| Transportation expenses, Taxes, <i>TOTAL EXPENSES,</i> | . | . | . | . | . | . | . | . | . | \$1,274,810 31 98,388 53 1,373,198 84 | \$2,499,364 65 121,240 99 2,620,605 64 | \$3,229,234 38 234,397 45 3,463,631 83 | \$11,935 36 207 86 12,143 22 |
| NET INCOME, DIVIDENDS, ETC. | | | | | | | | | | | | | |
| Net income, Rents, Interest accrued, Dividends earned, Per cent., Dividends declared, Per cent., Balance for the year, Surplus last year, Surplus Sept. 30, 1886, | . | . | . | . | . | . | . | . | . | \$411,606 35 11,727 01 21,715 61 378,163 73 9.4 340,000 00 8.5 38,163 73 452,174 12 490,337 85 | \$1,278,800 13 66,235 27 1,067,087 03 145,477 83 — 133,000 00 7.0 11,159 79† 681,361 91 670,202 12 | \$1,310,382 54 32,694 09 582,534 54 695,153 91 6.2 761,747 00 7.0 66,593 09d 1,026,311 81 959,718 72 | \$5,396 85 — — 5,396 85 — — — 5,396 85 4,524 76d 772 10 |

* Not including holders of "Bentley Bonds" unexchanged.

† \$1,318.01 deducted for loss operating Boston Grain Elevator.

d Deficit.

| | 12.—BOSTON & PROVIDENCE — Con. | 13.—NEW YORK & NEW ENGLAND — Con. | 14.—OLD COLONY — Con. | 15.—BOSTON, WIN- THROP & SHORE — Con. |
|---|-----------------------------------|--------------------------------------|--------------------------|--|
| MILEAGE, TRAFFIC, ETC. | | | | |
| Passenger-train mileage, | 745,626 | 1,238,048 | 1,840,975 | 15,947 |
| Freight-train mileage, | 253,652 | 1,020,982 | 725,383 | — |
| Total revenue-train mileage, | 999,278 | 2,259,030 | 2,566,358 | 15,947 |
| Switching-train mileage, | 49,154 | 612,769 | 738,011 | — |
| Other train mileage, | — | 125,009 | 247,455 | — |
| TOTAL TRAIN MILEAGE, | 1,048,432 | 2,966,808 | 3,551,854 | 15,947 |
| Number season-ticket passengers, | 561,044 | 803,560 | 2,115,670 | 46,540 |
| Number local passengers (including season), | 5,877,809 | 4,582,220 | 8,106,947 | 163,954 |
| Number through passengers,* | 242,097 | 658,686 | 961,843 | 69,069 |
| Total number passengers carried, | 6,119,906 | 5,240,906 | 9,068,790 | 233,023 |
| Local passenger mileage, | 51,244,908 | 47,640,899 | 112,220,192 | 100,419 |
| Through passenger mileage,* | 6,745,791 | 16,229,571 | 22,592,972 | 432,226 |
| Total passenger mileage, | 57,990,699 | 63,870,470 | 134,813,164 | 532,645 |
| Tons of local freight carried, | 396,197 | 538,337 | 1,146,796 | — |
| Tons of through freight carried,* | 354,023 | 1,561,002 | 717,510 | — |
| Total tons of freight carried, | 750,220 | 2,099,339 | 1,864,306 | — |
| Local freight mileage, | 10,432,971 | 20,871,957 | 34,096,991 | — |
| Through freight mileage,* | 11,494,520 | 114,598,376 | 29,263,267 | — |
| Total freight mileage, | 21,927,491 | 135,470,333 | 63,360,258 | — |
| Average rate of fare per mile, local passengers, through passengers,* | 1.925 cents. | 2.096 cents. | 2.00 cents. | 3.92 cents. |
| season-ticket passengers, | 2.143 " | 2.270 " | 1.90 " | 3.18 " |
| ALL PASSENGERS, | .918 " | .808 " | .50 " | 2.26 " |
| Average rate of freight per mile, local freight, through freight,* | 1.869 " | 2.019 " | 1.70 " | 2.89 " |
| ALL FREIGHT, | 3.432 " | 3.510 " | 4.20 " | — |
| | 2.800 " | 1.340 " | 2.13 " | — |
| | 2.838 " | 1.670 " | 2.93 " | — |

| | | | | |
|--|-----------|-----------|-----------|---------|
| Passengers to Boston (including season), | 2,269,165 | 1,156,751 | 2,501,309 | 110,775 |
| Passengers from Boston (including season), | 2,321,323 | 1,142,812 | 2,528,739 | 122,248 |
| Season-ticket passengers to and from Boston, | 416,283 | 245,318 | 1,346,458 | 46,540 |
| EQUIPMENT. | | | | |
| Number of locomotives, | 58 | 147 | 133 | 1 |
| passenger cars, | 158 | 149 | 255 | 3 |
| parlor and sleeping cars, | 24† | 3 | 12 | - |
| mail, baggage and express cars, | 25 | 41 | 42 | - |
| freight cars (basis 8 wheels), | 520 | 3,565 | 2,331 | - |
| other cars, | 417 | 12 | 12 | 5 |
| GENERAL INFORMATION, ETC | | | | |
| Total miles of road operated, | 67,752 | 379,76 | 468,46 | 8,65 |
| Same in Massachusetts, | 57,331 | 109,67 | 452,27 | 8,65 |
| Average number of persons employed, | 994 | 3,045 | 3,360 | 15 |

* To and from other roads.

† Line cars 8 per cent. owned.

| | 16. — CHESHIRE. | 17. — CONNECTICUT RIVER. | 18. — FALL RIVER, WARREN & PROVIDENCE. | 19. — HANOVER BRANCH. |
|---|-----------------|-----------------------------|--|--------------------------|
| CAPITAL STOCK. | | | | |
| Amount paid in, | \$2,153,300 00 | \$2,370,000 00 | \$150,000 00 | \$123,950 00 |
| Number of stockholders, | 452 | 928 | 27 | 78 |
| Stockholders in Massachusetts, | 336 | 743 | 11 | 76 |
| Amount of stock held in Massachusetts, | \$1,645,000 00 | \$1,905,600 00 | \$103,300 00 | \$122,850 00 |
| DEBT. | | | | |
| Funded debt, | \$800,000 00 | - | \$300,000 00 | \$15,000 00 |
| Unfunded debt, | 50,999 00 | \$762,364 61 | 2,939 55 | 795 00 |
| TOTAL GROSS DEBT, | 850,999 00 | 762,364 61 | 302,939 55 | 15,795 00 |
| PERMANENT INVESTMENTS. | | | | |
| Construction, | \$2,395,268 94 | \$2,941,097 06 | \$310,747 60 | \$194,826 66 |
| Equipment, | 322,266 82 | 410,441 55 | - | 71,312 69 |
| Other property, | - | 99,610 00 | - | 2,365 00 |
| TOTAL PERMANENT INVESTMENTS, | 2,717,535 26 | 3,451,148 61 | 310,747 60 | 268,704 35 |
| Cash and cash assets, | 382,065 51 | 639,590 61 | 3,228 51 | 11,721 01 |
| TOTAL PROPERTY AND ASSETS, | 3,099,600 77 | 4,090,739 22 | 313,976 11 | 280,425 86 |
| REVENUE FOR THE YEAR. | | | | |
| From local passengers, | \$41,821 25 | \$273,722 48 | \$453 78 | \$8,728 53 |
| through passengers, | 116,888 48 | 110,705 69 | 23,925 51 | 16,042 35 |
| express and extra baggage, | 7,500 00 | 18,160 67 | 1,500 00 | 2,027 99 |
| mails, | 9,485 44 | 11,237 80 | 445 48 | 265 47 |
| other sources passenger department, | 7,500 00 | - | - | - |
| <i>Total earnings passenger department,</i> | 183,195 17 | 413,826 64 | 26,324 77 | 27,064 34 |

| | | | | |
|---|--------------|--------------|-------------|-------------|
| From local freight, | 29,220 16 | 152,231 57 | 46 75 | 2,625 74 |
| through freight, | 383,415 43 | 313,285 57 | 5,513 87 | 15,388 23 |
| other sources freight department, | — | — | — | — |
| <i>Total earnings freight department,</i> | 412,635 59 | 465,517 14 | 5,560 62 | 18,014 17 |
| TOTAL TRANSPORTATION EARNINGS, | 595,830 76 | 879,343 78 | 31,885 39 | 45,078 51 |
| From rents for use of road, | — | — | — | — |
| all other sources, | 32,241 69 | 35,457 61 | 48 67 | 118 51 |
| TOTAL INCOME FROM ALL SOURCES, | 628,072 45 | 914,801 39 | 31,934 06 | 45,197 02 |
| EXPENSES. | | | | |
| Transportation expenses, | \$370,546 08 | \$579,913 68 | \$19,254 50 | \$24,105 59 |
| Taxes, | 23,087 55 | 64,674 97 | 310 86 | 1,285 58 |
| TOTAL EXPENSES, | 393,633 63 | 644,588 65 | 19,565 36 | 25,391 17 |
| NET INCOME, DIVIDENDS, ETC. | | | | |
| Net income, | \$234,438 82 | \$270,212 74 | \$12,368 70 | \$19,805 85 |
| Rents, | 51,727 95 | 22,760 42 | — | — |
| Interest accrued, | 48,000 00 | 27,901 73 | 12,368 70 | 937 50 |
| Dividends earned, | 134,710 87 | 219,556 59 | — | 18,868 35 |
| Per cent., | 6.3 | 9.3 | — | 15.2 |
| Dividends declared, | 105,000 00 | 189,600 00 | — | 7,428 00 |
| Per cent., | 5.0 | 8.0 | — | 6.0 |
| Balance for the year, | 29,710 87 | 29,950 59* | — | 11,440 35 |
| Surplus last year, | 65,590 90 | 928,424 02 | 138,963 44d | 129,240 01 |
| Surplus Sept. 30, 1886, | 95,301 77 | 958,374 61 | 138,963 44d | 140,680 36 |

* Paid dividend Jan. 1, 1886, of \$17,409 from surplus of previous years.

d Deficit.

| | 16. — CHESHIRE — Con. | 17. — CONNECTICUT RIVER — Con. | 18. — FALL RIVER, WARREN & PROVIDENCE — Con. | 19. — HANOVER BRANCH — Con. |
|--|-----------------------|-----------------------------------|--|--------------------------------|
| MILEAGE, TRAFFIC, ETC. | | | | |
| Passenger-train mileage, | 169,015 | 333,841 | 31,300 | 23,336 |
| Freight-train mileage, | 404,805 | 147,280 | 6,220 | 5,068 |
| Total revenue-train mileage, | 573,820 | 481,121 | 37,520 | 28,344 |
| Switching-train mileage, | 45,543 | 100,144 | — | — |
| Other train mileage, | 11,967 | 18,619 | — | — |
| TOTAL TRAIN MILEAGE, | 631,270 | 599,884 | 37,520 | 28,344 |
| Number season-ticket passengers, | 4,506 | 311,840 | — | 12,671 |
| Number local passengers (including season), | 83,291 | 1,369,365 | 5,068 | 42,788 |
| Number through passengers,* | 89,921 | 161,843 | 151,149 | 81,399 |
| Total number of passengers carried, | 173,212 | 1,531,208 | 156,217 | 136,858 |
| Local passenger mileage, | 1,451,536 | 11,967,103 | 16,161 | 256,730 |
| Through passenger mileage,* | 3,688,181 | 3,921,045 | 997,902 | 488,398 |
| Total passenger mileage, | 5,139,517 | 15,888,148 | 1,014,063 | 745,128 |
| Tons of local freight carried, | 44,401 | 210,280 | 85 | 10,391 |
| Tons of through freight carried,* | 567,497 | 461,559 | 14,499 | 39,382 |
| Total tons of freight carried, | 611,898 | 671,839 | 14,584 | 49,773 |
| Local freight mileage, | 1,211,122 | 3,568,666 | 340 | 72,735 |
| Through freight mileage,* | 32,119,140 | 12,999,147 | 111,371 | 235,293 |
| Total freight mileage, | 33,330,262 | 16,567,813 | 111,711 | 308,028 |
| Average rate of fare per mile, local passengers, through passengers,* | 3.50 cents. | 2.28 cents. | 2.80 cents. | 3.40 cents. |
| season-ticket passengers, | 3.20 " | 2.82 " | 2.30 " | 2.19 " |
| ALL PASSENGERS, | 1.50 " | 0.73 " | — | 1.04 " |
| Average rate of freight per mile local freight, through freight,* | 3.10 " | 2.42 " | 2.40 cents | 2.01 " |
| ALL FREIGHT, | 5.00 " | 4.27 " | 10.50 " | 3.61 " |
| | 1.19 " | 2.39 " | 4.95 " | 3.27 " |
| | 1.24 " | 2.81 " | 4.97 " | 3.91 " |

EQUIPMENT.

| | | | | |
|---|-----|-----|---|----|
| Number of locomotives, | 30 | 43 | † | 3 |
| passenger cars, | 25 | 35 | - | 4 |
| parlor and sleeping cars, | - | - | - | - |
| mail, baggage and express cars, | 11 | 18† | - | 2 |
| freight cars (basis 8 wheels), | 453 | 486 | - | 18 |
| other cars, | 32 | 47 | - | - |

GENERAL INFORMATION, ETC.

| | | | | |
|---|-------|--------|-------|------|
| Total miles of road operated, | 64.01 | 79.850 | 5,794 | 8.00 |
| Same in Massachusetts, | 21.20 | 55.925 | 3,662 | 8.00 |
| Average number of persons employed, | 330 | 586 | 18 | 29 |

* To and from other roads.

† Leases equipment of Old Colony Railroad Company.

‡ Includes 15 combination cars.

| | 20. — HOUSATONIC OF CONNECTICUT.* | 21. — MILFORD & WONSOCKET. | 22. — NANTASKET BEACH.† | 23. — NEW HAVEN & NORTHAMPTON. | 24. — NEW LONDON NORTHERN.‡ |
|--|--------------------------------------|-------------------------------|----------------------------|-----------------------------------|--------------------------------|
| CAPITAL STOCK. | | | | | |
| Amount paid in, | - | \$148,600 00 | - | \$2,460,000 00 | \$1,500,000 00 |
| Number of stockholders, | - | 30 | - | 249 | 334 |
| Stockholders in Massachusetts, | - | 28 | - | 40 | 59 |
| Amount of stock held in Massachusetts, | - | \$140,800 00 | - | \$138,100 00 | \$313,100 00 |
| DEBT. | | | | | |
| Funded debt, | - | \$19,000 00 | - | \$3,900,000 00 | \$1,499,500 00 |
| Unfunded debt, | - | 54,141 87 | - | 175,544 55 | 136,838 09 |
| TOTAL GROSS DEBT, | - | 73,141 87 | - | 4,075,544 55 | 1,636,338 09 |
| PERMANENT INVESTMENTS. | | | | | |
| Construction, | - | \$170,744 33 | - | \$5,650,038 40 | \$2,812,674 36 |
| Equipment, | - | 34,450 01 | - | 910,957 03 | 248,420 44 |
| Other property, | - | - | - | 100,372 81 | 243,170 00 |
| TOTAL PERMANENT INVESTMENTS, | - | 205,194 34 | - | 6,661,368 24 | 3,304,264 80 |
| Cash and cash assets, | - | 10,818 44 | - | 276,362 48 | 268,497 71 |
| TOTAL PROPERTY AND ASSETS, | - | 216,012 78 | - | 6,937,730 72 | 3,572,762 51 |
| REVENUE FOR THE YEAR. | | | | | |
| From local passengers, | \$58,993 26 | \$15,846 96 | \$8,963 22 | \$155,626 32 | \$124,901 04 |
| through passengers, | 31,765 60 | 10,111 26 | - | 63,427 14 | 91,027 25 |
| express and extra baggage, | 5,550 00 | 1,470 00 | - | 15,674 52 | 10,250 50 |
| mails, | 4,857 12 | 830 25 | 320 67 | 9,303 25 | 11,951 22 |
| other sources passenger department, | - | - | - | - | - |
| Total earnings passenger department, | 101,165 98 | 28,258 47 | 9,283 89 | 214,031 23 | 238,130 01 |

| | | | | | |
|---|--------------|------------------------|------------|--------------|--------------|
| From local freight, | 58,241 52 | 11,022 83 | 91 20 | 307,442 63 | 168,881 57 |
| through freight, | 75,861 38 | 12,336 87 | - | 263,054 97 | 212,826 89 |
| other sources freight department, | 17,949 44 | - | - | 17,216 20 | - |
| <i>Total earnings freight department,</i> | 152,052 34 | 23,359 70 | 91 20 | 590,713 80 | 381,708 46 |
| TOTAL TRANSPORTATION EARNINGS, | 253,218 32 | 51,618 17 | 9,375 09 | 834,745 03 | 619,838 47 |
| From rents for use of road, | - | - | - | - | - |
| all other sources, | 792 58 | - | 552 34 | 7,764 06 | 9,861 66 |
| TOTAL INCOME FROM ALL SOURCES, | 254,010 90 | 51,618 17 | 9,927 43 | 842,509 09 | 629,700 13 |
| EXPENSES. | | | | | |
| Transportation expenses, | \$160,564 27 | \$42,094 42 | \$9,624 22 | \$550,291 14 | \$327,635 08 |
| Taxes, | 7,465 68 | 595 35 | 34 91 | 20,965 25 | 23,924 83 |
| TOTAL EXPENSES, | 168,029 95 | 42,689 77 | 9,659 13 | 571,256 39 | 351,559 91 |
| NET INCOME, DIVIDENDS, ETC. | | | | | |
| Net income, | \$85,188 37 | \$8,928 40 | \$268 30 | \$271,252 70 | \$213,183 59 |
| Rents, | - | - | - | 28,443 09 | - |
| Interest accrued, | - | 4,202 55 | - | 232,425 25 | 84,847 92 |
| Dividends earned, | - | - | - | 10,384 36 | 128,335 67 |
| Per cent., | - | - | - | - | - |
| Dividends declared, | - | - | - | - | 90,000 00 |
| Per cent., | - | - | - | - | 6.0 |
| Balance for the year, | - | 4,725 85 | 268 30 | 10,384 36 | 38,335 67 |
| Surplus last year, | - | 10,454 94 ^d | 11,547 65 | 391,801 81 | 398,088 75 |
| Surplus Sept. 30, 1886, | - | 5,729 09 ^d | 11,815 95 | 402,186 17 | 436,424 42 |

* Operating the Berkshire, Stockbridge & Pittsfield and West Stockbridge railroads.

† The details of the operation of the road are taken from the return made by the trustee for the bondholders.

‡ Company's account; being amount derived from rent, etc., \$237,244.70; less general expenses, \$24,061.11.

§ Lessee's Account.

^d Deficit

† Leased to J. Gregory Smith et al.

| | 20. — HOUSATONIC OF CONNECTICUT — Con. | 21. — MILFORD & WOONSOCKET — Con. | 22. — NANTASKET BEACH — Con. | 23. — NEW HAVEN & NORTHAMPTON — Con. | 24. — NEW LONDON NORTHERN — Con. |
|--|---|--------------------------------------|---------------------------------|---|-------------------------------------|
| MILEAGE, TRAFFIC, ETC. | | | | | |
| Passenger-train mileage, | 94,313 | 53,396 | 19,709 | 398,520 | 257,228 |
| Freight-train mileage, | 90,314 | 15,833 | — | 225,030 | 192,031 |
| Total revenue-train mileage, | 184,627 | 69,229 | 19,709 | 623,550 | 449,249 |
| Switching-train mileage, | — | 7,748 | — | 62,582 | 114,575 |
| Other train mileage, | 13,413 | 1,860 | — | 13,058 | 540 |
| TOTAL TRAIN MILEAGE, | 198,040 | 78,837 | 19,709 | 699,190 | 564,364 |
| Number season ticket passengers, | — | 21,241 | 4,205 | — | 32,312 |
| Number local passengers (including season), | 91,997 | 98,878 | 85,037 | 442,046 | 321,518 |
| Number through passengers,* | 49,588 | 46,488 | — | 96,038 | 150,182 |
| Total number of passengers carried, | 141,535 | 145,316 | 85,037 | 538,084 | 471,700 |
| Local passenger mileage, | 2,247,503 | 588,009 | 589,562 | 6,693,611 | 3,997,206 |
| Through passenger mileage,* | 1,411,804 | 351,121 | — | 2,941,517 | 3,180,369 |
| Total passenger mileage, | 3,659,307 | 939,130 | 589,562 | 9,635,128 | 7,177,575 |
| Tons of local freight carried, | 45,458 | 15,939 | — | 268,363 | 135,895 |
| Tons of through freight carried,* | 67,864 | 34,686 | — | 234,653 | 361,678 |
| Total tons of freight carried, | 113,322 | 50,625 | — | 503,016 | 497,573 |
| Local freight mileage, | 1,705,919 | 107,043 | — | 14,131,298 | 5,034,590 |
| Through freight mileage,* | 4,741,336 | 319,332 | — | 14,932,839 | 20,265,335 |
| Total freight mileage, | 6,447,255 | 426,375 | — | 29,064,137 | 25,299,925 |
| Av. rate of fare per mile, local passengers, through passengers,* | 3.63 cents. 2.25 " | 5.23 " 2.02 " | 1.44 cents. — | 2.32 cents. 2.15 " | 3.30 cents. 2.86 " |
| season-ticket passengers, ALL PASSENGERS, | — 2.48 cents. | 1.24 " 2.71 " | .77 cents. 1.40 " | — 2.27 cents. | .72 " 3.00 " |
| Av. rate of freight per mile, local freight, through freight,* | 13.40 " 1.60 " | 10.30 " 3.86 " | — — | 2.17 " 1.78 " | 3.50 " 1.00 " |
| ALL FREIGHT, | 2.08 " | 5.47 " | — | 1.97 " | 1.51 " |

| EQUIPMENT. | | | | | | | | | |
|-------------------------------------|---|---|---|---|--------|-------|---------|--------|-----|
| Number of locomotives, | . | . | . | . | 3 | 4 | 4 | 28 | 23 |
| passenger cars, | . | . | . | . | 4 | 12 | 12 | 26 | 13 |
| parlor and sleeping cars, | . | . | . | . | - | - | - | 2 | - |
| mail, baggage, and express cars, | . | . | . | . | - | - | 4 | 11 | 14 |
| freight cars (basis 8 wheels), | . | . | . | . | 3 | 4 | 4 | 134 | 325 |
| other cars, | . | . | . | . | 1 | 5 | 5 | 411 | 7 |
| GENERAL INFORMATION, ETC. | | | | | | | | | |
| Total miles of road operated, | . | . | . | . | 19,997 | 6,933 | 173,010 | 121.00 | |
| Same in Massachusetts, | . | . | . | . | 19,997 | 6,933 | 106,620 | 54.00 | |
| Average number of persons employed, | . | . | . | . | 45 | 20 | 540 | 484 | |

* To and from other roads.

| | 25.—NEW YORK, NEW HAVEN & HARTFORD. | 26.—NORWICH & WORCESTER. | 27.—PROVIDENCE & WORCESTER. | 28.—UNION FREIGHT. | 29.—WORCESTER, NASHUA & ROCHESTER.* |
|--|---|-----------------------------|--------------------------------|-----------------------|---|
| CAPITAL STOCK. | | | | | |
| Amount paid in, | \$15,500,000 00 | \$2,604,400 00 | \$2,500,000 00 | \$300,000 00 | \$3,099,800 00 |
| Number of stockholders, | 3,586 | 767 | 799 | 3 | 818 |
| Stockholders in Massachusetts, | 502 | 617 | 409 | 3 | 571 |
| Amount of stock held in Massachusetts, | \$2,245,900 00 | \$2,009,100 00 | \$1,415,300 00 | \$300,000 00 | \$2,596,800 00 |
| DEBT. | | | | | |
| Funded debt, | \$2,000,000 00 | \$400,000 00 | \$1,242,000 00 | — | \$1,662,000 00 |
| Unfunded debt, | 641,687 80 | 185,641 78 | 371,667 26 | \$114,312 30 | 85,547 50 |
| TOTAL GROSS DEBT, | 2,641,687 80 | 585,641 78 | 1,613,667 26 | 114,312 30 | 1,697,547 50 |
| PERMANENT INVESTMENTS. | | | | | |
| Construction, | \$13,285,696 14 | \$3,309,556 82 | \$3,500,000 00 | \$401,069 67 | \$4,138,584 99 |
| Equipment, | 2,479,326 35 | 179,750 67 | 575,000 00 | 17,000 00 | 415,336 03 |
| Other property, | 999,714 59 | 273,107 08 | — | 13,000 00 | — |
| TOTAL PERMANENT INVESTMENTS, | 16,764,737 08 | 3,762,414 57 | 4,075,000 00 | 431,069 67 | 4,553,921 02 |
| Cash and cash assets, | 4,640,366 11 | 282,567 30 | 309,025 78 | 15,889 18 | 115,474 58 |
| TOTAL PROPERTY AND ASSETS, | 21,405,103 19 | 4,044,981 87 | 4,384,025 78 | 446,958 85 | 4,669,395 60 |
| REVENUE FOR THE YEAR. | | | | | |
| From local passengers, | \$2,601,847 35 | \$120,084 78 | \$407,472 25 | — | 21,150 21 |
| through passengers, | 1,443,590 98 | 72,977 81 | 61,233 27 | — | 26,599 08 |
| express and extra baggage, | 277,166 06 | 16,574 28 | 20,826 67 | — | 2,393 54 |
| mails, | 174,184 75 | 5,770 54 | 3,863 88 | — | 3,017 65 |
| other sources passenger department, | 180,259 87 | — | — | — | 555 01 |
| Total earnings passenger department, | 4,677,049 01 | 215,407 41 | 493,395 07 | — | 53,715 49 |

| | | | | | |
|--|----------------|--------------|--------------|-------------|---------------|
| From local freight, through freight, | 909,617 85 | 186,243 51 | 415,529 73 | \$69,477 99 | 24,405 09 |
| other sources freight department, <i>Total earnings freight department,</i> | 1,868,029 30 | 344,420 62 | 289,846 65 | 3,651 83 | 86,108 53 |
| <i>Total earnings freight department,</i> | 17,593 57 | - | - | - | 4,604 73 |
| TOTAL TRANSPORTATION EARNINGS, From rents for use of road, | 2,795,240 72 | 530,664 13 | 705,376 38 | 73,129 82 | 115,118 35 |
| all other sources, | 7,472,289 73 | 746,071 54 | 1,198,772 45 | 73,129 82 | 168,833 84 |
| TOTAL INCOME FROM ALL SOURCES, EXPENSES. | - | - | - | - | 187,500 00 |
| Transportation expenses, | 139,656 68 | 2,587 52 | 46,939 01 | 912 00 | 12,708 52 |
| Taxes, | 7,601,946 41 | 748,659 06 | 1,245,711 46 | 74,041 82 | 369,042 36 |
| TOTAL EXPENSES, | \$4,661,029 88 | \$425,881 32 | \$830,972 99 | \$43,522 08 | \$104,429 49 |
| Net income, | 306,946 14 | 48,401 21 | 43,688 76 | 1,792 32 | 99 10 |
| Rents, | 4,967,976 02 | 474,282 53 | 874,661 75 | 45,314 40 | 104,528 59 |
| Interest accrued, | \$2,633,970 39 | \$274,376 53 | \$371,049 71 | \$28,727 42 | \$264,513 77 |
| Dividends earned, | 420,730 00 | 40,475 00 | - | - | - |
| Per cent., | 80,000 00 | 24,157 52 | 85,713 62 | 7,557 94 | 82,991 04 |
| Dividends declared, | 2,133,240 39 | 209,744 01 | 285,336 09 | 21,169 48 | 181,522 73 |
| Per cent., | 13.8 | 8.1 | 11.4 | 7.0 | - |
| Balance for the year, | 1,550,000 00 | 207,824 00 | 150,000 00 | 21,000 00 | 91,869 00 |
| Surplus last year, | 583,240 39 | 1,920 01 | 135,336 09 | 7.0 | 3.0† |
| Surplus Sept. 30, 1886, | 2,680,175 00 | 853,020 08 | 54,489 34 | 169 48 | 89,653 73 |
| | 3,263,415 39 | 854,940 09 | 270,358 52† | 32,477 07 | \$217,605 63d |
| | | | | 32,646 55 | 127,951 90d |

* Operated by the company until Jan. 1, 1886, when the road was leased to the Boston & Maine Railroad, and earnings and expenses from that date are in the B. & M. report.

† On \$3,062,300 capital stock.

‡ Deducted from surplus \$29,841.84 for personal injuries, etc.; \$278,000 for "distribution of stock."

d Deficit.

† Includes improvement fund of \$80,533.09.

| | 25. — NEW YORK, NEW HAVEN & HARTFORD — Con. | 26. — NORWICH & WORCESTER — Con. | 27. — PROVIDENCE & WORCESTER — Con. | 28. — UNION FREIGHT — Con. | 29. — WORCESTER, NASHUA & ROCHESTER — Con. |
|--|---|-------------------------------------|--|-------------------------------|--|
| MILEAGE, TRAFFIC, ETC. | | | | | |
| Passenger-train mileage, | 2,576,385 | 176,639 | 310,194 | — | 62,339 |
| Freight-train mileage, | 1,388,161 | 171,290 | 567,710 | 18,364 | 65,762 |
| Total revenue-train mileage, | 3,964,546 | 347,929 | 887,904 | 18,364 | 128,101 |
| Switching-train mileage, | 827,274 | 172,040 | 222,063 | — | 36,703 |
| Other train mileage, | 181,423 | 15,878 | 46,507 | — | 2,529 |
| TOTAL TRAIN MILEAGE, | 4,973,243 | 535,847 | 836,474 | 18,364 | 167,333 |
| Number season-ticket passengers, | 2,439,250 | 43,820 | 121,368 | — | 17,992 |
| Number local passengers (including season), | 7,372,495 | 460,735 | 2,685,201 | — | 71,596 |
| Number through passengers,* | 894,815 | 104,720 | 156,080 | — | 37,257 |
| Total number of passengers carried, | 8,267,310 | 565,455 | 2,841,281 | — | 108,853 |
| Local passenger mileage, | 158,697,345 | 5,693,612 | 19,742,613 | — | 868,520 |
| Through passenger mileage,* | 67,465,299 | 2,926,670 | 2,489,803 | — | 910,241 |
| Total passenger mileage, | 226,162,644 | 8,620,282 | 22,232,416 | — | 1,778,761 |
| Tons of local freight carried, | 744,080 | 230,019 | 503,066 | 227,680 | 16,523 |
| Tons of through freight carried,* | 1,632,165 | 459,730 | 461,107 | 11,241 | 107,618 |
| Total tons of freight carried, | 2,376,195 | 689,749 | 964,173 | 238,921 | 124,141 |
| Local freight mileage, | 25,189,843 | 8,475,862 | 13,668,468 | 313,060 | 604,458 |
| Through freight mileage,* | 113,985,209 | 14,019,407 | 14,621,956 | 16,861 | 3,647,113 |
| Total freight mileage, | 139,175,052 | 22,495,269 | 28,290,424 | 329,921 | 4,251,571 |
| Av. rate of fare per mile, local passengers, | 2.56 cents. | 2.50 cents. | 2.20 cents. | — | 3.16 cents. |
| through passengers,* | 2.28 " | 2.40 " | 2.42 " | — | 2.76 " |
| season-ticket passengers, | .57 " | .90 " | .67 " | — | .89 " |
| ALL PASSENGERS, | 1.92 " | 2.24 " | 2.10 " | — | 2.73 " |
| Av. rate of freight per mile, local freight, | 3.65 " | 2.19 " | 3.04 " | 2.22 cents. | 3.54 " |
| through freight,* | 1.64 " | 2.45 " | 1.98 " | 2.17 " | 2.12 " |
| ALL FREIGHT, | 2.00 " | 2.36 " | 2.49 " | 2.21 " | 2.31 " |

EQUIPMENT.

| | | | | | |
|--|-------|-----|-------|---|-----|
| Number of locomotives, . . . | 132 | 17 | 38 | 4 | 24 |
| passenger cars, . . . | 270 | 11 | 46 | - | 19 |
| parlor and sleeping cars, . . . | 37 | 4† | - | - | 3 |
| mail, baggage, and express cars, . . . | 95 | 3 | 15 | - | 9 |
| freight cars (basis 8 wheels), . . . | 2,720 | 559 | 1,153 | - | 417 |
| other cars, . . . | 57 | 6 | 14 | - | - |

GENERAL INFORMATION, ETC.

| | | | | | |
|---|--------|-------|-------|-------|-------|
| Total miles of road operated, . . . | 265.36 | 66.48 | 50.41 | 2,431 | 94.48 |
| Same in Massachusetts, . . . | 5.87 | 18.50 | 26.01 | 2,431 | 39.46 |
| Average number of persons employed, . . . | 4,119 | 434 | 876 | 34 | 400 |

* To and from other roads.

† Combination cars.

| NARROW GAUGE ROADS. | 30.—BOSTON, REVERE BEACH & LYNN. | 31.—GRAFTON CENT. TRE. | 32.—MARTIA'S VINEYARD. | 33.—NANTUCKET. | 34.—WORCESTER & SHREWSBURY. |
|--|-------------------------------------|---------------------------|---------------------------|----------------|--------------------------------|
| CAPITAL STOCK. | | | | | |
| Amount paid in, | \$600,000 00 | \$29,830 00 | \$40,000 00 | \$95,000 00 | \$36,825 00 |
| Number of stockholders, | 341 | 56 | 24 | 75 | 10 |
| Stockholders in Massachusetts, . . | 318 | 56 | 22 | 60 | 10 |
| Amount of stock held in Massachusetts, . | \$540,700 00 | \$29,830 00 | \$36,400 00 | \$83,100 00 | \$36,825 00 |
| DEBT. | | | | | |
| Funded debt, | \$350,000 00 | \$13,000 00 | \$40,000 00 | \$59,500 00 | \$22,000 00 |
| Unfunded debt, | 58,180 11 | 8,132 51 | 2,032 00 | 13,078 28 | 3,343 15 |
| TOTAL GROSS DEBT, | 408,180 11 | 21,132 51 | 42,032 00 | 72,578 28 | 25,343 15 |
| PERMANENT INVESTMENTS. | | | | | |
| Construction, | \$662,577 84 | \$39,245 98 | \$91,512 09 | \$156,904 67 | 43,958 10 |
| Equipment, | 178,535 22 | 5,025 69 | 14,031 00 | 14,413 18 | 33,466 62 |
| Other property, | 213,129 12 | — | 3,501 63 | — | — |
| TOTAL PERMANENT INVESTMENTS, . . | 1,054,242 18 | 44,271 67 | 109,044 72 | 171,317 85 | 77,424 72 |
| Cash and cash assets, | 22,500 71 | 312 83 | 596 34 | 1,415 44 | 299 88 |
| TOTAL PROPERTY AND ASSETS, | 1,076,742 89 | 44,584 50 | 109,641 06 | 172,733 29 | 77,724 60 |
| REVENUE FOR THE YEAR. | | | | | |
| From local passengers, | \$202,962 20 | \$4,458 16 | \$4,546 68 | \$6,840 85 | \$26,970 98 |
| through passengers, | 5,912 10 | — | — | — | — |
| express and extra baggage, | — | 525 00 | 21 50 | — | — |
| mails, | — | 500 00 | 200 00 | — | — |
| all other sources, | 13,970 85 | 1,298 76 | 358 27 | 590 55 | 324 87 |
| TOTAL INCOME FROM ALL SOURCES, . | 222,845 15 | 6,781 92 | 5,126 45 | 7,431 40 | 27,295 85 |

| | | | | | | |
|------------------------------------|---|---|---|-------------------|-------------------|-------------|
| EXPENSES. | | | | | | |
| Transportation expenses, | . | . | . | \$6,918 09 | \$4,646 15 | \$5,585 19 |
| Taxes, | . | . | . | - | 24 24 | 121 03 |
| TOTAL EXPENSES, | . | . | . | 6,918 09 | 4,670 39 | 5,706 22 |
| NET INCOME, DIVIDENDS, ETC. | | | | | | |
| Net income, | . | . | . | \$136 17 <i>d</i> | \$456 06 | \$10,880 62 |
| Interest accrued, | . | . | . | 1,127 50 | 2,019 39 | 1,320 00 |
| Dividends declared, | . | . | . | - | - | - |
| Per cent., | . | . | . | - | - | - |
| Balance for the year, | . | . | . | 1,263 67 <i>d</i> | 1,563 33 <i>d</i> | 9,560 62 |
| Surplus last year, | . | . | . | 5,114 34 <i>d</i> | 29,172 39 | 5,995 83 |
| Surplus Sept. 30, 1886, | . | . | . | 6,378 01 <i>d</i> | 27,609 06 | 15,556 45 |

d Deficit.

| NARROW GAUGE ROADS. | 30.—BOSTON, REVERE BEACH & LYNN — CON. | 31.—GRAFTON CEN- TRE — CON. | 32.—MANTUA'S VINEYARD — CON. | 33.—NANTUCKET — CON. | 34.—WORCESTER & SURREWSBURY — CON. |
|--|---|--------------------------------|---------------------------------|-------------------------|---------------------------------------|
| MILEAGE, TRAFFIC, ETC. | | | | | |
| Passenger-train mileage, | 168,212 | 14,085 | 6,424 | 11,214 | 34,156 |
| Other train mileage, | 8,386 | — | — | — | — |
| TOTAL TRAIN MILEAGE, | 176,598 | 14,085 | 6,424 | 11,214 | 34,156 |
| Number season-ticket passengers, | 342,420 | — | — | — | — |
| Number local passengers (including sea- son), | 1,951,571 | 39,973 | 19,647 | 22,020 | 337,192 |
| Number through passengers,* | 69,069 | — | — | — | — |
| Total number of passengers carried, | 2,020,640 | 39,973 | 19,647 | 22,020 | 337,192 |
| Local passenger mileage, | 10,439,201 | 119,919 | 141,848 | 242,220 | 910,418 |
| Through passenger mileage,* | 214,113 | — | — | — | — |
| Total passenger mileage, | 10,653,314 | 119,919 | 141,848 | 242,220 | 910,418 |
| EQUIPMENT. | | | | | |
| Number of locomotives, | 7 | 1 | 1 | 2 | 3 |
| passenger cars, | 33 | 1 | 3 | 4 | 7 |
| mail, baggage and express cars, | — | — | 1 | — | — |
| freight cars (basis 8 wheels), | 4 | — | — | 4 | — |
| other cars, | 24 | — | — | — | 4 |
| GENERAL INFORMATION, ETC. | | | | | |
| Total miles of road operated, | 8.80 | 3.00 | 8.78 | 11.16 | 2.70 |
| Same in Massachusetts, | 8.80 | 3.00 | 8.78 | 11.16 | 2.70 |
| Average number of persons employed, | 105 | 8 | 10 | 15 | 7 |

* To and from other roads.

| LEASED ROADS.* | 35. — ATTLEBOROUGH BRANCH. 1 | 36. — BERKSHIRE. 2 | 37. — EASTERN. 3 | 38. — FALL RIVER. 4 | 39. — HOLYOKE & WESTFIELD. 5 |
|--|---------------------------------|--------------------|----------------------|---------------------|---------------------------------|
| LIABILITIES. | | | | | |
| Capital stock, | \$131,700 00 | \$600,000 00 | \$ 4,997,600 00 | \$200,000 00 | \$260,000 00 |
| Funded debt, | — | — | 13,224,203 17 | 200,000 00 | 260,000 00 |
| Unfunded debt, | — | 245 07 | 830,834 69 | 64,787 51 | 97 |
| Surplus Sept. 30, 1886, | 836 46 | 14,253 82 | 702,067 04 | 20,842 82d | 12,382 00 |
| TOTAL LIABILITIES, | 132,536 46 | 614,498 89 | 19,754,704 90 | 464,787 51 | 532,382 97 |
| ASSETS. | | | | | |
| Construction, | \$131,416 48 | \$600,000 00 | \$14,497,655 26 | \$143,944 69 | \$522,268 89 |
| Other property, | 1,000 00 | 6,000 00 | 4,504,806 25 | — | — |
| Cash and cash assets, | 119 98 | 8,498 89 | 752,243 39 | — | 10,114 08 |
| TOTAL ASSETS, | 132,536 46 | 614,498 89 | 19,754,704 90 | 443,944 69 | 532,382 97 |
| INCOME, EXPENSES, ETC., FOR THE YEAR. | | | | | |
| Total income from all sources, | \$9,259 00 | \$42,445 15 | \$1,294,411 58 | \$11,604 31 | \$28,443 09 |
| Total expenses, | — | 9,921 38 | 9,859 63 | 276 60 | 1,118 95 |
| Net income, | 9,259 00 | 32,523 77 | 1,284,551 95 | 11,327 71 | 27,324 14 |
| Interest accrued, | — | — | 850,431 46 | 10,000 00 | 17,600 00 |
| Dividends declared, | 9,219 00 | 32,497 92 | — | — | 10,400 00 |
| Per cent., | 7.0 | 5.41 | — | — | 4.0 |
| Balance for the year, | 40 00 | 25 85 | 434,120 49 | 1,327 71 | 675 86d |

* Leased to and operated by the ¹ Boston and Providence, ² Housatonic of Connecticut, ³ Boston and Maine, ⁴ Old Colony, ⁵ New Haven and Northampton.

| LEASED ROADS.* | | 40. — LOWELL & ANDOVER, 1 | 41. — MILFORD, FRANKLIN & PROVIDENCE, † | 42. — MONADNOCK, 2 | 43. — NASHUA & LOWELL, 3 |
|--|---|------------------------------|--|--------------------|-----------------------------|
| LIABILITIES. | | | | | |
| Capital stock, | . | \$500,000 00 | \$100,000 00 | \$205,400 00 | \$800,000 00 |
| Funded debt, | . | 180,000 00 | — | 52,000 00 | 300,000 00 |
| Unfunded debt, | . | — | 43 50 | 2 00 | 40,468 50 |
| Surplus Sept 30, 1886, | . | 110,602 31 | — | 115,959 33 | 121,140 69 |
| TOTAL LIABILITIES, | . | 790,602 31 | 100,043 50 | 373,361 33 | 1,261,609 19 |
| ASSETS. | | | | | |
| Construction, | . | \$754,695 94 | \$95,061 35 | \$367,701 26 | \$691,292 07 |
| Other property, | . | — | 4,685 08 | 3,090 00 | 218,242 95 |
| Cash and cash assets, | . | 35,906 37 | 297 07 | 2,570 07 | 352,074 17 |
| TOTAL ASSETS, | . | 790,602 31 | 100,043 50 | 373,361 33 | 1,261,609 19 |
| INCOME, EXPENSES, ETC., FOR THE YEAR. | | | | | |
| Total income from all sources, | . | \$53,225 53 | † | \$12,750 00 | \$83,514 79 |
| Total expenses, | . | 463 89 | — | 62 00 | 5,603 39 |
| Net income, | . | 52,761 64 | — | 12,688 00 | 77,911 40 |
| Interest accrued, | . | 10,800 00 | — | 2,839 75 | 17,585 89 |
| Dividends declared, | . | 35,000 00 | — | — | 56,000 00 |
| Per cent., | . | 7.0 | — | — | 7.0 |
| Balance for the year, | . | 6,961 64 | — | 9,848 25 | 4,325 51 |

* Leased to and operated by the ¹ Boston & Maine, ² Cheshire, ³ Boston & Lowell.

† Operated by the Milford and Woonsocket R. R. Co. upon terms not yet agreed upon.

| LEASED ROADS.* | | 44. — NASHUA & ACTON & BOSTON. 1 | 45. — NEWBURYPORT CITY. 2 | 46. — NORTH BROOKFIELD. 3 | 47. — PITTSFIELD & NORTH ADAMS. 4 |
|--|---|-------------------------------------|------------------------------|------------------------------|--------------------------------------|
| LIABILITIES. | | | | | |
| Capital stock, | . | \$500,000 00 | \$97,000 00 | \$100,000 00 | \$450,000 00 |
| Funded debt, | . | 500,000 00 | 25,000 00 | — | — |
| Unfunded debt, | . | 462,482 90 | — | — | — |
| Surplus Sept. 30, 1886, | . | 399,194 29 ^d | 16,707 81 | 5,995 24 | — |
| TOTAL LIABILITIES, | . | 1,462,482 90 | 138,707 81 | 105,995 24 | 450,000 00 |
| ASSETS. | | | | | |
| Construction, | . | \$1,057,031 20 | \$122,128 33 | \$105,456 79 | \$438,752 57 |
| Other property, | . | — | — | 75 00 | 11,247 43 |
| Cash and cash assets, | . | 6,257 41 | 16,579 48 | 463 45 | — |
| TOTAL ASSETS, | . | 1,063,288 61 | 138,707 81 | 105,995 24 | 450,000 00 |
| INCOME, EXPENSES, ETC., FOR THE YEAR. | | | | | |
| Total income from all sources, | . | \$5,500 00 | \$6,865 37 | \$2,553 94 | \$22,500 00 |
| Total expenses, | . | — | 1,040 29 | 279 34 | — |
| Net income, | . | 5,500 00 | 5,825 08 | 2,274 60 | 22,500 00 |
| Interest accrued, | . | 30,225 51 | 1,750 00 | — | — |
| Dividends declared, | . | — | 3,395 00 | 2,000 00 | 22,500 00 |
| Per cent., | . | — | 3.5 | 2.0 | 5.0 |
| Balance for the year, | . | 24,725 51 ^d | 680 08 | 274 60 | — |

* Leased to ¹ Concord of N. H., ² Eastern, and operated by the Boston & Maine, ³ Boston & Albany.

^d Deficit.

| LEASED ROADS.* | | 48.—RHODE ISLAND & MASSA- CHUSETTS.1 | 49.—PROVIDENCE, WEBSTER & SPRING- FIELD.2 | 50.—SPENCER.2 | 51.—SPRINGFIELD & NEW LONDON.3 | 52.—STOCKBRIDGE & PUTTIFIELD.4 |
|---------------------------------------|---|--|---|-------------------|-----------------------------------|-----------------------------------|
| LIABILITIES. | | | | | | |
| Capital stock, | . | \$100,000 00 | \$110,000 00 | \$50,000 00 | \$198,145 00 | \$448,700 00 |
| Funded debt, | . | — | — | 4,500 00 | — | — |
| Unfunded debt, | . | 19 00 | 49,136 02 | — | 49 50 | 742 16 |
| Surplus Sept. 30, 1886, | . | 22,225 43 | 2,554 31 | 8,934 29 | 238 46 <i>d</i> | 2,815 43 |
| TOTAL LIABILITIES, | . | 122,244 43 | 161,690 33 | 63,434 29 | 198,194 50 | 452,257 59 |
| ASSETS. | | | | | | |
| Construction, | . | \$112,921 13 | \$161,630 33 | \$62,854 43 | \$187,805 52 | \$448,700 00 |
| Other property, | . | — | — | — | 9,998 00 | 2,550 00 |
| Cash and cash assets, | . | 9,923 30 | 60 00 | 579 86 | 152 52 | 1,007 59 |
| TOTAL ASSETS, | . | 122,244 43 | 161,690 33 | 63,434 29 | 197,956 04 | 452,257 59 |
| INCOME, EXPENSES, ETC., FOR THE YEAR. | | | | | | |
| Total income from all sources, | . | \$10,000 00 | \$4,119 62 | \$1,823 24 | \$4,135 00 | \$31,647 00 |
| Total expenses, | . | — | 512 89 | 815 69 | 836 52 | 7,174 48 |
| Net income, | . | 10,000 00 | 3,606 73 | 1,007 55 | 3,298 48 | 24,472 52 |
| Interest accrued, | . | — | 1,460 80 | 270 00 | — | 67 79 |
| Dividends declared, | . | 5,000 00 | — | 4,500 00 | 5,593 25 | 24,362 13 |
| Per cent., | . | 5.0 | — | 9.0 | 5.25 | 5.43 |
| Balance for the year, | . | 5,000 00 | 2,145 93 | 3,762 45 <i>d</i> | 2,294 77 <i>d</i> | 42 60 |

* These roads are leased to and operated by the ¹, ³ New York & New England, ² Boston & Albany, ⁴ Housatonic of Connecticut. *d* Deficit.

| LEASED ROADS.* | | 53.—STONY BROOK, MASSACHUSETTS. 2 | 54.—VERMONT & MASSACHUSETTS. 2 | 55.—WARE RIVER, 3 | 56.—WEST AMES- BURY BRANCH. 4 | 57.—WEST STOCK- BRIDGE. 5 |
|---------------------------------------|---|--------------------------------------|-----------------------------------|-------------------|----------------------------------|------------------------------|
| LIABILITIES. | | | | | | |
| Capital stock, | . | \$300,000 00 | \$3,193,000 00 | \$750,000 00 | \$57,000 00 | \$39,600 00 |
| Funded debt, | . | — | 1,000,000 00 | — | 57,000 00 | — |
| Unfunded debt, | . | — | 11,813 55 | 365,163 82 | 150 00 | — |
| Surplus Sept. 30, 1886, | . | 223 93 | 142,002 28 | — | 173 22 | 1,198 47 |
| TOTAL LIABILITIES, | . | 300,223 93 | 4,346,815 83 | 1,115,163 82 | 114,323 22 | 40,798 47 |
| ASSETS. | | | | | | |
| Construction, | . | \$276,601 19 | \$3,288,328 01 | \$1,115,163 82 | \$114,000 00 | \$39,600 00 |
| Other property, | . | 21,492 38 | 472,507 65 | — | — | 400 00 |
| Cash and cash assets, | . | 2,130 36 | 585,980 17 | — | 323 22 | 798 47 |
| TOTAL ASSETS, | . | 300,223 93 | 4,346,815 83 | 1,115,163 82 | 114,323 22 | 40,798 47 |
| INCOME, EXPENSES, ETC., FOR THE YEAR. | | | | | | |
| Total income from all sources, | . | \$20,000 00 | \$194,580 00 | \$52,500 00 | \$5,700 00 | \$1,937 58 |
| Total expenses, | . | 261 59 | 3,000 00 | — | 588 65 | 322 72 |
| Net income, | . | 19,738 41 | 191,580 00 | 52,500 00 | 5,111 35 | 1,614 86 |
| Interest accrued, | . | — | † | — | 3,990 00 | — |
| Dividends declared, | . | 19,500 00 | 191,580 00 | 52,500 00 | 1,140 00 | 1,584 00 |
| Per cent., | . | 6.5 | 6.0 | 7.0 | 2.0 | 4.0 |
| Balance for the year, | . | 238 41 | — | — | 18 65d | 30 86 |

* These roads are leased to and operated by the ¹ Boston & Lowell, ² Fitchburg, ³ Boston & Albany, ⁴ Boston & Maine, ⁵ Housatonic of Connecticut.

† Interest paid by Fitchburg Railroad Company.

d Deficit.

| | 58. — TROY & GREENFIELD.* | 59. — CENTRAL MASSACHUSETTS.† | 60. — CHELSEA BEACH.‡ | 61. — DANVERS.‡ | 62. — DORCHESTER & MILTON.‡ | 63. — HORN POND BRANCH § |
|--|------------------------------|----------------------------------|--------------------------|-----------------|--------------------------------|-----------------------------|
| LIABILITIES. | | | | | | |
| Capital stock, | - | \$7,254,094 00 | \$21,000 00 | \$67,500 00 | \$73,340 00 | \$2,000 00 |
| Funded debt, | - | - | - | 150,000 00 | - | - |
| Unfunded debt, | - | - | 17,310 52 | 26,956 02 | 58,448 07 | - |
| Surplus Sept. 30, 1886, | - | - | - | - | 4,584 70 | 13,238 46 |
| TOTAL LIABILITIES, | - | \$7,254,094 00 | 38,310 52 | 244,456 02 | 136,372 77 | 15,238 46 |
| ASSETS. | | | | | | |
| Construction, | - | † | \$38,310 52 | \$244,456 02 | \$136,372 77 | \$15,238 46 |
| Other property, | - | - | - | - | - | - |
| Cash and cash assets, | - | - | - | - | - | - |
| TOTAL ASSETS, | - | - | 38,310 52 | 244,456 02 | 136,372 77 | 15,238 46 |
| INCOME, EXPENSES, ETC., FOR THE YEAR. | | | | | | |
| Total income from all sources, | \$ | † | - | - | - | - |
| Total expenses, | - | - | - | - | - | - |
| Net income, | - | - | - | - | - | - |

* This road is operated by connecting railroads, under contract with the State.

† Road in the hands of the committee of the bondholders. Operated during the year by the Boston & Lowell Railroad, and the earnings and expenses are included in the report of that company.

‡ These roads are virtually owned by the 1 Eastern, and operated by the Boston & Maine, 2 Boston & Maine, 3 Old Colony; and their earnings and expenses are included in the returns of those roads.

§ No returns received at time of going to press.

4 Operated by the Boston & Lowell.

| | 64. — LANCASTER.* | 65. — NEWBURYPORT.† | 66. — NEW YORK & BOSTON INLAND.‡ | 67. — OCEAN TERMINAL.‡ |
|-------------------------------------|-------------------|---------------------|-------------------------------------|---------------------------|
| LIABILITIES. | | | | |
| Capital stock, | - | \$220,340 02 | \$127,720 00 | \$2,000 00 |
| Funded debt, | - | 300,000 00 | - | - |
| Unfunded debt, | - | 77,046 31 | 17,798 12 | - |
| Surplus Sept. 30, 1886, | - | - | - | - |
| TOTAL LIABILITIES, | - | 597,386 33 | 145,518 12 | 2,000 00 |
| ASSETS. | | | | |
| Construction, | - | \$597,386 33 | \$145,451 81 | \$1,669 28 |
| Other property, | - | - | - | - |
| Cash and cash assets, | - | - | 66 31 | 330 72 |
| TOTAL ASSETS, | - | 597,386 33 | 145,518 12 | 2,000 00 |

* Road sold under foreclosure of a mortgage.

† This road is virtually owned by the Boston & Maine, and its earnings and expenses are included in the return of that road.

‡ Obtained a certificate of incorporation but has not yet commenced the construction of its road.

TABULATED COMPARATIVE RESULTS
OF THE
CONDITION AND OPERATION
OF SEVERAL OF THE
RAILROAD CORPORATIONS OF THE STATE.

COMPILED FROM REPORTS.

TABULATED COMPARATIVE RESULTS OF RAILROAD CORPORATIONS.

| STOCK, DEBT AND COST PER MILE OF ROAD OWNED. | | | | | | |
|--|----------------------|-----------------|---------------------------------|---------------------|------------------|------------------------------------|
| RAILROADS. | 68. — Stock paid in. | 69. — Net Debt. | 70. — Total Stock and Net Debt. | 71. — Construction. | 72. — Equipment. | 73. — Total Permanent Investments. |
| Boston & Albany, | \$65,685 76 | \$29,505 75 | \$95,191 51 | \$83,586 25 | \$10,330 40 | \$99,193 42 |
| Boston & Lowell, | 52,292 79 | 37,094 83 | 89,387 62 | 71,737 42 | 12,223 77 | 101,623 22 |
| Boston & Maine, | 56,451 61 | 26,232 22 | 82,683 83 | 77,588 21 | 10,549 84 | 97,583 42 |
| Boston & Providence, | 62,743 13 | 10,896 80 | 73,639 93 | 73,549 40 | 3,253 23 | 81,339 27 |
| Fitchburg, | 39,579 25 | 30,165 66 | 69,744 91 | 42,476 15 | 20,071 23 | 72,816 95 |
| New York & New England, | 67,225 34 | 48,047 69 | 115,273 03 | 100,057 89 | 11,682 00 | 113,215 75 |
| Old Colony, | 24,677 14 | 21,596 27 | 46,273 39 | 39,798 53 | 4,781 88 | 48,392 42 |
| Eastern, | 42,238 00 | 112,430 65 | 154,668 65 | 122,529 20 | 12,236 55 | 160,602 28 |
| Average, | \$49,037 71 | \$36,604 39 | \$85,642 10 | \$72,541 01 | \$9,845 87 | \$89,441 29 |
| Cheshire, | \$40,158 52 | \$8,745 49 | \$48,904 01 | \$44,671 18 | \$6,010 19 | \$50,681 37 |
| Connecticut River, | 42,435 09 | 2,198 28 | 44,633 31 | 52,660 65 | 7,349 00 | 61,793 17 |
| New Haven & Northampton, | 19,316 84 | 29,832 60 | 49,149 44 | 44,366 22 | 7,153 18 | 52,307 58 |
| New York, New Haven & Hartford, | 110,163 47 | — | 110,163 47 | 92,798 05 | 17,621 37 | 119,152 36 |
| Norwich & Worcester, | 39,175 69 | 4,558 89 | 43,734 58 | 49,782 74 | 2,703 83 | 56,594 68 |
| Providence & Worcester, | 49,593 33 | 25,880 60 | 75,473 93 | 69,430 67 | 11,466 47 | 80,837 14 |
| Average, | \$55,799 24 | \$12,132 65 | \$67,931 89 | \$62,866 16 | \$9,865 78 | \$75,710 85 |
| Average 14 Roads, | \$50,620 63 | \$30,886 50 | \$81,507 13 | \$70,283 47 | \$9,851 03 | \$86,236 72 |

Tabulated Comparative Results of Railroad Corporations — Continued.

| RAILROADS. | EARNINGS AND EXPENSES PER MILE ROAD OPERATED. | | | EARNINGS AND EXP. PER TOTAL REVENUE TRAIN-MILE. | | |
|---|---|---------------------------|---------------------|---|---------------------------|---------------------|
| | 74. — Total Transportation Earnings. | 75. — Operating Expenses. | 76. — Net Earnings. | 77. — Total Transportation Earnings. | 78. — Operating Expenses. | 79. — Net Earnings. |
| Boston & Albany, | \$20,620 83 | \$13,715 02 | \$6,905 81 | \$1,596 | \$1,062 | \$0,534 |
| Boston & Lowell, | 6,260 41 | 4,439 90 | 1,820 51 | 1,139 | .808 | .331 |
| Boston & Maine, | 12,428 48 | 7,723 89 | 4,704 59 | 1,580 | .982 | .598 |
| Boston & Providence, | 25,994 86 | 18,815 83 | 7,179 03 | 1,763 | 1,276 | .487 |
| Fitchburg, | 14,223 34 | 10,502 53 | 3,720 81 | 1,337 | .987 | .350 |
| New York & New England, | 9,740 88 | 6,581 43 | 3,159 45 | 1,638 | 1,107 | .531 |
| Old Colony, | 9,460 47 | 6,893 30 | 2,567 17 | 1,727 | 1,258 | .469 |
| Average, | \$11,604 68 | \$7,913 98 | \$3,690 70 | \$1,509 | \$1,029 | \$0,480 |
| Cheshire, | \$9,308 40 | \$5,788 88 | \$3,519 52 | \$1,038 | \$0,645 | \$0,393 |
| Connecticut River, | 11,012 45 | 7,262 54 | 3,749 91 | 1,828 | 1,206 | .622 |
| New Haven & Northampton, | 4,824 83 | 3,180 69 | 1,644 14 | 1,337 | .882 | .455 |
| New York, New Haven & Hartford, | 28,159 06 | 17,564 93 | 10,594 13 | 1,884 | 1,175 | .709 |
| Norwich & Worcester, | 11,222 50 | 6,406 15 | 4,816 34 | 2,144 | 1,224 | .920 |
| Providence & Worcester, | 23,780 45 | 16,484 29 | 7,296 16 | 2,112 | 1,463 | .649 |
| Average, | \$17,485 32 | \$11,061 36 | \$6,423 96 | \$1,788 | \$1,131 | \$0,657 |
| Average 13 Roads, | \$12,732 51 | \$8,517 94 | \$4,214 57 | \$1,573 | \$1,052 | \$0,521 |

Tabulated Comparative Results of Railroad Corporations — Continued.

| RAILROADS. | EXPENSES PER TOTAL TRAIN MILE. | | | | | | | |
|---|--------------------------------|-------------------|----------------------------|--------------------------------|--------------|-----------------------|---|-----------------------------------|
| | \$0. — Repairs of Road.* | \$1. — New Rails. | \$2. — Repairs of Bridges. | \$3. — Repairs of Locomotives. | \$4. — Fuel. | \$5. — Oil and Waste. | \$6. — Repairs of Passenger, Baggage and Mail Cars, † | \$7. — Repairs of Freight Cars. ‡ |
| Boston & Albany, | \$0.1341 | \$0.0232 | \$0.0147 | \$0.0829 | \$0.1136 | \$0.0102 | \$0.0981 | \$0.1490 |
| Boston & Lowell, | .1147 | .0101 | .0139 | .0456 | .0955 | .0056 | .0499 | .0802 |
| Boston & Maine, | .1053 | .0202 | .0282 | .0504 | .0838 | .0057 | .0837 | .1296 |
| Boston & Providence, | .1721 | .0162 | .0886 | .0630 | .1006 | .0157 | .0936 | .1590 |
| Fitchburg, | .0841 | .0141 | .0126 | .0499 | .0933 | .0039 | .0547 | .1460 |
| New York & New England, | .1127 | .0098 | .0149 | .0733 | .1064 | .0047 | .0566 | .1132 |
| Old Colony, | .1630 | .0210 | .0333 | .0485 | .0745 | .0070 | .1333 | .2102 |
| Average, | \$0.1216 | \$0.0172 | \$0.0225 | \$0.0592 | \$0.0952 | \$0.0068 | \$0.0822 | \$0.1340 |
| Cheshire, | \$0.0600 | \$0.0093 | \$0.0019 | \$0.0533 | \$0.1308 | \$0.0090 | \$0.0647 | \$0.0437 |
| Connecticut River, | .1871 | .0176 | .0317 | .0402 | .1111 | .0060 | .0560 | .1609 |
| New Haven & Northampton, | .1268 | .0336 | .0357 | .0616 | .0855 | .0114 | .0780 | .1312 |
| New York, New Haven & Hartford, | .1345 | .0009 | .0370 | .0447 | .0674 | .0076 | .0958 | .2139 |
| Norwich & Worcester, | .0826 | .0221 | .0226 | .0505 | .0874 | .0040 | .0528 | .1885 |
| Providence & Worcester, | .1195 | .0103 | .0743 | .0632 | .0797 | .0050 | .1557 | .1058 |
| Average, | \$0.1271 | \$0.0078 | \$0.0366 | \$0.0487 | \$0.0787 | \$0.0074 | \$0.0921 | \$0.1647 |
| Average 13 Roads, | \$0.1229 | \$0.0149 | \$0.0258 | \$0.0567 | \$0.0914 | \$0.0069 | \$0.0846 | \$0.1407 |

* Including cost of new ties.

† Per passenger-train mile.

‡ Per freight-train mile.

Tabulated Comparative Results of Railroad Corporations — Continued.

| RAILROADS. | REPAIRS. | | | AVERAGES, ETC. | | | |
|---|-----------------------|--|------------------------|--|---|---|--|
| | 88. — Per Locomotive. | 89. — Per Passenger, Baggage and Mail Car. | 90. — Per Freight Car. | 91. — Per Passenger: Average Distance travelled. | 92. — Per Ton of Freight; Average Distance carried. | 93. — Average No. of Passengers per Train Mile. | 94. — Average No. of Tons of Freight per Train Mile. |
| Boston & Albany, | \$1,926 48 | \$712 56 | \$70 42 | 18.3 | 111.3 | 86 | 133 |
| Boston & Lowell, | 1,205 27 | 318 31 | 37 12 | 13.2 | 58.1 | 39 | 88 |
| Boston & Maine, | 1,211 50 | 545 84 | 43 17 | 13.2 | 47.8 | 73 | 86 |
| Boston & Providence, | 1,138 10 | 337 22 | 43 11 | 9.5 | 29.2 | 78 | 86 |
| Fitchburg, | 1,424 12 | 437 86 | 47 63 | 14.8 | 77.8 | 48 | 168 |
| New York & New England, | 1,494 98 | 362 77 | 32 32 | 12.2 | 64.5 | 52 | 133 |
| Old Colony, | 1,294 96 | 794 17 | 65 03 | 14.8 | 83.9 | 73 | 87 |
| Average, | \$1,434 48 | \$714 07 | \$53 85 | 13.9 | 67.8 | 64 | 116 |
| Cheshire, | \$1,122 12 | \$303 90 | \$38 62 | 29.7 | 54.4 | 30 | 82 |
| Connecticut River, | 731 23 | 352 74 | 44 38 | 10.4 | 24.7 | 48 | 113 |
| New Haven & Northampton, | 1,538 15 | 798 61 | 54 17 | 17.9 | 57.8 | 24 | 129 |
| New York, New Haven & Hartford, | 1,683 46 | 614 35 | 106 93 | 27.3 | 58.6 | 88 | 100 |
| Norwich & Worcester, | 1,592 56 | 549 34 | 57 06 | 15.3 | 32.6 | 49 | 132 |
| Providence & Worcester, | 1,394 32 | 791 13 | 23 39 | 7.8 | 29.3 | 72 | 110 |
| Average, | \$1,399 38 | \$886 76 | \$77 63 | 20.6 | 46.2 | 72 | 103 |
| Average 13 Roads, | \$1,427 22 | \$752 49 | \$58 42 | 15.2 | 62.0 | 66 | 113 |

Tabulated Comparative Results of Railroad Corporations — Concluded.

| RAILROADS. | 95. — Passenger Earnings. | 96. — Freight Earnings. | 97. — Total Trans- portation Earnings. | 98. — Operating Expenses. | 99. — Net Earnings. | 100. — Per cent Op- erating Expenses to Trans. Earnings. |
|---------------------------------|------------------------------|----------------------------|---|------------------------------|------------------------|--|
| Boston & Albany, | \$3,689,837 88 | \$4,299,082 90 | \$7,988,920 78 | \$5,313,473 45 | \$2,675,447 33 | 67 |
| Boston & Lowell, | 1,990,090 33 | 2,500,122 44 | 4,490,212 77 | 3,184,470 29 | 1,305,742 48 | 71 |
| Boston & Maine, | 4,324,116 31 | 2,929,766 07 | 7,253,882 38 | 4,508,052 46 | 2,745,829 92 | 62 |
| Boston & Providence, | 1,138,828 61 | 622,375 20 | 1,761,203 81 | 1,274,810 31 | 486,393 50 | 72 |
| Fitchburg, | 1,183,961 55 | 2,078,445 56 | 3,262,407 11 | 2,408,964 65 | 853,442 46 | 74 |
| New York & New England, | 1,436,716 34 | 2,262,479 18 | 3,699,195 52 | 2,499,364 65 | 1,199,830 87 | 68 |
| Old Colony, | 2,574,587 00 | 1,857,263 76 | 4,431,850 76 | 3,229,234 38 | 1,202,616 38 | 74 |
| Cheshire, | \$183,195 17 | \$412,635 59 | \$595,830 76 | \$370,546 08 | \$225,284 68 | 62 |
| Connecticut River, | 413,826 64 | 465,517 14 | 879,343 78 | 579,913 68 | 299,430 10 | 66 |
| New Haven & Northampton, | 244,031 23 | 590,713 80 | 834,745 03 | 550,291 14 | 284,453 89 | 66 |
| New York, New Haven & Hartford, | 4,677,949 01 | 2,795,240 72 | 7,472,289 73 | 4,661,029 88 | 2,811,259 85 | 62 |
| Norwich & Worcester, | 215,407 41 | 530,664 13 | 746,071 54 | 425,881 32 | 320,190 22 | 57 |
| Providence & Worcester, | 493,396 07 | 705,376 38 | 1,198,772 45 | 830,972 99 | 367,799 46 | 70 |

COMPARISON OF RETURNS

1885 with 1886,

AND

SUMMARY TAKEN FROM RETURNS

OF

1873-1881-1882-1883-1884-1885-1886.

Summary taken from the Returns of 1885 and 1886.

| | 1885. | 1886. | Increase. | Decrease. |
|---|---------------------|---------------------|-----------------|--------------|
| <i>Roadway.</i> | | | | |
| Length of road and branches, | Miles. 2,859.793 | Miles. 2,867.613 | Miles. 7.820 | Miles. - |
| in Massachusetts, | 1,981.688 | 1,989.508 | 7.820 | - |
| Length of double track, | 977.087 | 1,011.367 | 34.280 | - |
| in Massachusetts, | 699.639 | 733.919 | 34.280 | - |
| Length of sidings, | 1,203.142 | 1,249.862 | 46.720 | - |
| in Massachusetts, | 855.300 | 892.676 | 37.376 | - |
| Total length as single track, | 5,040.022 | 5,128.842 | 88.820 | - |
| in Massachusetts, | 3,536.627 | 3,616.103 | 79.476 | - |
| Length of steel rails in track, | 3,336.476 | 3,573.910 | 237.434 | - |
| Length of iron rails in track, | 1,703.546 | 1,554.932 | - | 148.614 |
| Total miles of road operated, | 3,725.297* | 3,778.387 | 53.090 | - |
| in Massachusetts, | 1,935.779* | 1,988.879 | 53.100 | - |
| Railroad crossings at grade, | 40 | 39 | - | 1 |
| over grade, | 19 | 19 | - | - |
| under grade, | 19 | 19 | - | - |
| Highway crossings at grade, | 2,118 | 2,138 | 20 | - |
| protected, | 709 | 738 | 29 | - |
| unprotected, | 1,409 | 1,400 | - | 9 |
| <i>Assets.</i> | | | | |
| Construction, | \$177,392,457 66 | \$178,013,772 71 | \$621,315 05 | - |
| Equipment, | 22,680,642 08 | 22,465,263 04 | - | \$215,379 04 |
| Lands, | 2,398,186 20 | 2,552,865 50 | 154,679 30 | - |
| Stocks, | 7,290,133 55 | 7,509,923 65 | 219,790 10 | - |
| Bonds, | 1,466,517 43 | 1,319,627 07 | - | 136,890 36 |
| Other property, | 2,468,026 98 | 2,392,617 55 | - | 75,409 43 |
| Total permanent investments, | \$213,685,963 90 | \$214,254,069 52 | \$568,105 62 | - |
| Cash, | \$3,097,890 04 | \$4,034,413 04 | \$936,533 00 | - |
| Materials and supplies, | 3,885,005 73 | 3,583,332 41 | - | \$351,673 32 |
| Sinking fund, | 2,974,738 83 | 2,731,089 42 | - | 243,649 41 |
| Other cash assets, | 10,118,338 66 | 12,161,740 03 | 2,043,401 37 | - |
| Total cash and cash assets, | \$20,075,963 26 | \$22,460,574 90 | \$2,384,611 64 | - |
| Profit and loss balance (deficit), | 1,336,456 47 | 1,682,947 64 | 346,491 17 | - |
| Total assets as per balance-sheet, | \$235,098,383 63 | \$238,397,592 06 | \$3,299,208 43 | - |
| <i>Liabilities.</i> | | | | |
| Capital stock, | \$128,551,658 54 | \$130,687,969 02 | \$2,136,310 48 | - |
| Funded debt, | 79,714,724 18 | 80,216,499 55 | 501,775 37 | - |
| Unfunded debt, | 14,067,861 12 | 13,256,572 84 | - | \$811,288 28 |
| Surplus, | 12,764,130 79 | 14,236,550 65 | 1,472,410 86 | - |
| Total liabilities as per balance-sheet, | \$235,098,383 63 | \$238,397,592 06 | \$3,299,208 43 | - |
| Total number of stockholders, | 39,440 | 38,876 | - | 564 |
| in Massachusetts, | 28,532 | 28,478 | - | 54 |
| Stock held in Massachusetts, | \$85,444,154 02 | \$84,734,764 02 | - | \$709,390 00 |
| Persons employed, | 30,069 | 31,188 | 1,119 | - |

* Central Mass. Railroad (43.60 miles) not in operation during the year.

Summary taken from the Returns of 1885 and 1886.

| | 1885. | 1886. | Increase. | Decrease. |
|---|-----------------|-----------------|----------------|-------------|
| <i>General Exhibit for the Year.</i> | | | | |
| Total income, | \$44,623,350 35 | \$49,315,820 50 | \$4,692,470 15 | - |
| Total expense, including taxes, | 29,357,967 36 | 32,372,939 74 | 3,014,972 38 | - |
| Net income, | 15,265,382 99 | 16,942,880 76 | 1,677,497 77 | - |
| Rentals, | 3,146,408 11 | 3,514,299 44 | 367,891 33 | - |
| Interest accrued, | 4,767,095 88 | 4,810,019 68 | 42,923 80 | - |
| Dividends earned, | 7,551,879 00 | 8,618,561 64 | 1,266,682 64 | - |
| per cent., | 5 72 | 6 70 | 0.98 | - |
| Dividends declared, | 6,551,704 15 | 6,857,506 30 | 305,802 15 | - |
| per cent., | 5.10 | 5.33 | 0.23 | - |
| Balance for the year, | 800,174 85 | 1,761,055 34 | 960,880 49 | - |
| Surplus Sept. 30, | 11,427,683 32 | 12,553,603 01 | 1,125,919 69 | - |
| <i>Transportation Earnings.</i> | | | | |
| From local passengers, | \$14,454,857 39 | \$15,773,723 12 | \$1,318,865 73 | - |
| through passengers, | 5,078,966 71 | 5,401,602 23 | 322,635 52 | - |
| express and extra baggage, | 1,206,175 11 | 1,280,947 06 | 74,771 95 | - |
| mails, | 634,004 90 | 686,738 42 | 52,673 52 | - |
| other sources, | 175,305 16 | 188,314 88 | 13,009 72 | - |
| Total passenger department, | \$21,549,369 27 | \$23,331,325 71 | \$1,781,956 44 | - |
| From local freight, | \$9,931,155 95 | \$10,929,413 10 | \$998,257 15 | - |
| through freight, | 10,192,899 01 | 11,852,778 57 | 1,659,879 56 | - |
| other sources, | 68,916 76 | 58,171 86 | - | \$10,744 90 |
| Total freight department, | \$20,192,971 72 | \$22,840,363 53 | \$2,647,391 81 | - |
| Total transportation earnings, | 41,742,340 99 | 46,171,689 24 | 4,429,348 25 | - |
| Transportation expenses, including taxes, | \$29,853,570 77 | \$32,892,265 58 | \$3,038,694 81 | - |
| <i>Mileage, Traffic, etc.</i> | | | | |
| Train miles, passenger, | 16,212,988 | 17,268,159 | 1,055,171 | - |
| freight, | 11,722,667 | 12,303,808 | 581,141 | - |
| Total revenue-train miles, | 27,935,655 | 29,571,967 | 1,636,312 | - |
| Miles run by other trains, | 6,233,344 | 6,869,076 | 635,732 | - |
| Total train miles, | 34,168,999 | 36,441,043 | 2,272,044 | - |
| Passengers, season ticket, | 10,694,750 | 10,810,716 | 115,966 | - |
| total number, | 69,603,700 | 75,842,581 | 6,238,881 | - |
| local mileage, | 796,294,048 | 865,354,544 | 69,060,496 | - |
| through mileage, | 245,334,025 | 258,793,501 | 13,459,476 | - |
| total mileage, | 1,041,628,073 | 1,124,148,045 | 82,519,972 | - |
| Freight, total tons carried, | 20,577,096 | 22,925,532 | 2,348,436 | - |
| local mileage, | 378,992,047 | 411,259,886 | 32,267,839 | - |
| through mileage, | 887,168,408 | 980,366,552 | 93,198,144 | - |
| total mileage, | 1,266,160,455 | 1,391,626,438 | 125,465,983 | - |
| <i>Equipment.</i> | | | | |
| Locomotives, | 1,416 | 1,445 | 29 | - |
| Passenger cars, | 1,993 | 2,058 | 65 | - |
| Mail, baggage and express cars, | 509 | 518 | 9 | - |
| Freight cars (basis 8 wheels), | 29,957 | 31,319 | 1,362 | - |

Summary taken from Returns of 1873, 1881, 1882, 1883, 1884, 1885, 1886.

| | 1873. | 1881. | 1882. | 1883. | 1884. | 1885. | 1886. |
|----------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Main line in Massachusetts, . . | 1,734,955 | 1,927,944 | 1,949,460 | 1,953,258 | 1,973,708 | 1,981,688 | 1,989,508 |
| Double track in Massachusetts, . | 436,068 | 480,877 | 539,070 | 587,299 | 667,889 | 699,639 | 733,919 |
| Sidings in Massachusetts, . . . | 443,987 | 739,285 | 768,195 | 793,264 | 832,393 | 855,300 | 892,676 |
| Total in Massachusetts, . . . | 2,615,010 | 3,148,106 | 3,256,725 | 3,339,803 | 3,473,990 | 3,536,627 | 3,616,103 |
| Amount of capital stock, . . . | \$115,406,883 54 | \$129,155,614 12 | \$122,976,262 26 | \$122,367,572 27 | \$127,668,390 27 | \$128,551,658 54 | \$130,687,969 02 |
| Amount of stock held in Mass., . | 63,267,080 00 | 80,813,841 82 | 80,602,561 35 | 81,477,470 02 | 85,332,908 02 | 85,444,154 02 | 84,731,764 02 |
| Number of stockholders, . . . | 32,901 | 36,354 | 37,284 | 38,275 | 39,205 | 39,140 | 38,876 |
| Stockholders in Massachusetts, . | 23,845 | 26,485 | 27,282 | 27,827 | 28,513 | 28,532 | 28,478 |
| Gross debt, | \$45,031,862 59 | \$79,340,124 56 | \$89,251,046 03 | \$91,235,835 97 | \$91,752,883 99 | \$93,782,585 30 | \$93,473,072 39 |
| Net debt, | 36,606,894 70 | 64,850,890 76 | 71,913,806 00 | 72,933,290 93 | 74,439,473 75 | 75,706,622 04 | 71,012,497 49 |
| Cost of construction, | \$128,181,510 69 | \$159,664,120 10 | \$163,724,377 54 | \$165,824,300 96 | \$176,899,373 56 | \$177,392,457 66 | \$178,013,772 71 |
| Cost of equipment, | 17,861,859 47 | 18,795,188 80 | 19,410,331 13 | 20,122,551 63 | 22,041,997 09 | 22,680,642 08 | 22,465,263 04 |
| Cost of other property, | 11,566,450 17 | 11,404,816 30 | 15,821,119 87 | 12,951,424 16 | 12,940,303 89 | 13,612,861 16 | 13,775,063 77 |
| Total permanent investment, . | 157,609,820 33 | 189,864,125 20 | 198,955,828 54 | 198,901,276 75 | 211,881,874 54 | 213,685,963 90 | 214,251,069 52 |
| Cash and cash assets, | 8,424,967 89 | 14,489,233 80 | 17,337,240 03 | 18,302,545 01 | 17,313,410 24 | 20,075,963 26 | 22,460,574 90 |
| Total property and assets, . . | 166,034,788 22 | 204,353,359 00 | 216,293,068 57 | 217,203,821 79 | 229,195,284 78 | 233,761,927 16 | 236,714,644 42 |
| Total income from all sources, . | \$34,930,527 42 | \$37,764,395 83 | \$40,846,370 10 | \$43,380,387 63 | \$43,119,302 70 | \$44,623,350 35 | \$49,315,820 50 |
| Total expense,* | 25,412,688 74 | 27,062,644 23 | 29,944,167 15 | 32,479,907 71 | 32,070,684 51 | 32,504,375 47 | 35,887,239 18 |
| Net income, | 9,517,838 68 | 10,701,751 60 | 10,902,202 95 | 10,900,479 92 | 11,048,618 19 | 12,118,974 88 | 13,428,581 32 |
| Interest accrued, | 1,846,783 16 | 3,748,292 55 | 4,291,222 60 | 4,756,085 23 | 4,729,328 56 | 4,767,095 88 | 4,810,019 68 |
| Dividends earned, | 7,671,055 52 | 6,953,439 05 | 6,610,980 36 | 6,144,394 69 | 6,319,289 63 | 7,351,879 00 | 8,618,561 64 |
| Percentage to capital stock, . . | 6.65 | 5.69 | 5.37 | 5.02 | 4.95 | 5.72 | 6.70 |
| Dividends declared, | 7,230,456 02 | 6,287,866 82 | 6,271,139 86 | 6,379,721 10 | 6,535,054 92 | 6,551,704 15 | 6,857,506 30 |
| Per cent., | 6.34 | 5.15 | 5.10 | 5.21 | 5.12 | 5.10 | 5.33 |
| Balance for the year, | 440,590 50 | 665,392 23 | 339,840 50 | 235,326 41d | 215,765 29d | 800,174 85 | 1,761,055 34 |
| Total surplus Sept. 30, . . . | 11,109,635 89 | 2,857,620 32 | 4,065,760 28 | 3,600,413 55 | 9,774,010 52 | 11,427,683 32 | 12,553,603 01 |

| Taxes paid, | \$1,266,167 99 | \$1,568,020 94 | \$1,830,437 00 | \$1,878,200 01 | \$2,024,559 81 | \$2,063,204 62 | \$2,106,565 25 |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Mileage, passenger trains, | 9,212,237† | 12,413,290 | 13,636,169 | 14,244,658 | 15,157,425 | 16,212,988 | 17,268,159 |
| Mileage, freight trains, | 9,684,612† | 10,398,539 | 10,598,126 | 11,382,154 | 11,282,338 | 11,722,667 | 12,303,808 |
| Mileage, other trains, | 1,164,748 | 4,393,934 | 4,818,505 | 5,524,011 | 5,864,370 | 6,233,314 | 6,869,076 |
| Total train mileage, | 20,061,617 | 27,205,753 | 29,052,800 | 31,150,823 | 32,304,333 | 34,168,999 | 36,441,043 |
| Total passenger mileage, | 658,207 465 | 788,422 761 | 892,321 207 | 943,245 658 | 1,007,136 376 | 1,041,628 073 | 1,124,148 045 |
| Through passenger mileage,† | 194,647 972 | 219,680 579 | 242,970 014 | 240,784 477 | 1,245,506 939 | 245,334 025 | 238,793 501 |
| Total freight mileage, | 613,769 300 | 1,080,802 736 | 1,130,070 652 | 1,220,824 418 | 229,368 472 | 1,266,160 455 | 1,391,626 438 |
| Through freight mileage,† | 355,433 861 | 760,209 637 | 777,203 347 | 822,282 988 | 870,891 828 | 887,168 408 | 980,366 552 |
| Total passengers carried, | 42,398,001 | 49,834,491 | 55,868,694 | 61,530,747 | 66,517,265 | 69,603,700 | 75,842,381 |
| Total tons of freight carried, | 12,431,188 | 17,971,072 | 19,061,164 | 20,202,881 | 20,273,920 | 20,377,096 | 22,926,532 |
| Total season-ticket passengers, | 6,655,443‡ | 12,616,987 | 12,674,117 | 12,769,420 | 11,436,929 | 10,694,750 | 10,810,716 |
| Number persons employed, | 20,182 | 25,490 | 27,403 | 29,844 | 30,590 | 30,069 | 31,188 |
| Locomotives, | 908 | 1,161 | 1,222 | 1,286 | 1,391 | 1,416 | 1,445 |
| Passenger cars, | 1,243 | 1,558 | 1,658 | 1,790 | 1,918 | 1,993 | 2,058 |
| Mail and baggage cars, | 305 | 432 | 463 | 482 | 525 | 509 | 518 |
| Freight cars, | 16,143 | 24,502 | 26,382 | 28,008 | 29,701 | 29,957 | 31,319 |
| Steel rails, | 630,406 | 2,134,964 | 2,486,203 | 2,774,431 | 3,121,790 | 3,336,476 | 3,573,910 |
| Iron rails, | 2,957 227 | 2,304,306 | 2,109,232 | 1,943,138 | 1,836,557 | 1,703,546 | 1,554,382 |

* Including operating expenses, taxes and rents. † Mileage of switching engines included in these accounts for this year, hereafter included in "Mileage, other trains."

‡ Mileage to and from other roads.

§ In this year computed by a majority of the roads one passenger per day, for the other years two passengers per day, for time of each ticket.

d Deficit.





